

7425CR  
77703

P.67

# SURFACE SCIENCE LABORATORIES

The University of Alabama in Huntsville

Dr. J. C. Gregory

Dr. J. J. Welmer

## XPS Analysis

Friday, May 17, 1991

For: Dr. A. Whittaker  
NASA Marshall Space Flight Center

Samples: H23A  
H23B  
H23C  
RTV511A  
RTV511B  
RTV511C

(NASA-CR-190087) XPS ANALYSIS (Alabama  
Univ.) 67 P

N92-70381

Unclassified  
Z9/25 0077703

\* - See Note on back  
of this page

The following materials were received from Marshall on May 10 for analysis:

Si-5658	(silicon rubber disk)
S13G	(white disk)
H23	(halar)
RTV511	(white polymer)

The first two were for Dr. R. Linton and the second two were for Dr. A. Whittaker.

Marshall was required to prepare the third and forth materials by cutting them into three pieces each to facilitate sample mounting. Samples were mounted on May 13 and analysis was performed shortly thereafter.

A total of nine (9) samples were analyzed.

- 1 Si-5658      analysis on central region of the material
2. S13GA      analysis on a central region of the disk that appeared brown in color
3. S13GB      analysis on an edge region of the disk that appeared white in color
4. H23A      analysis on the center of the bottom side of the halar material
5. H23B      analysis on the center of the top side of the halar material
6. H23C      analysis on the center of the edge side of the halar material
7. RTV511A      analysis on the center of the bottom (white colored) side of the polymer
8. RTV511B      analysis on the center of the top (brown colored) side of the polymer
9. RTV511C      analysis on the center of the edge (brown colored) side of the polymer

This report contains the results with the samples labelled as described above. Each analysis is divided by a blue colored separation sheet. For similar sets of samples (2-3, 4-6, and 7-9), the first page contains a summary table of elemental concentrations (atomic percent) on each sample from the quantitative analysis. For each sample, the next (or otherwise first) page presents the quantitative chemical analysis in atomic percent for each particular sample. The remaining pages for each sample show the XPS scans in the order of survey and high resolution on each of the major components. The high resolution scans also show the area used for quantitative determination of atomic concentrations.

The samples have been returned to Marshall Space Flight Center with this report.

Ion Gun:OFF X-ray:OFF Mg

Technique:ESCA

0.6mPa

5/19/91 12:56

Atomic Concentration (%) Summary Table

Screen 1 of 1

Page 1 of 1

Angle/	O1s	C12p	W4f
1 File Name	File	C1s	Si2p

1 File Name	File	O1s	C1s	Si2p	W4f
<hr/>					
H23A_2		10.94	30.01	46.90	1.43 10.72 -
H23B_3		20.55	15.42	59.06	2.85 2.01 0.11
H23C_3		15.26	18.83	62.19	1.23 2.40 0.08

Print  
Summary

Delete  
Entry

Clear AC  
Summary

Added afterward to report  
Mg peaks removed from quantitative  
analysis *JKW*

Ion Gun:OFF X-ray:OFF Mg

Technique:ESCA

0.6mPa

5/19/91 12:52

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5 6

3 Omitted Regions 7

Atomic Concentration Table

File: H23B\_3

Comment: halar sample: front side

Input Lens: Large Area Omni Focus

Element|Concentration(%)|Sens. Factor

F1s	20.55		1.000
O1s	15.42		0.711
C1s	59.06		0.296
Cl2p	2.85		0.891
Si2p	2.01		0.339
W4f	0.11		3.523

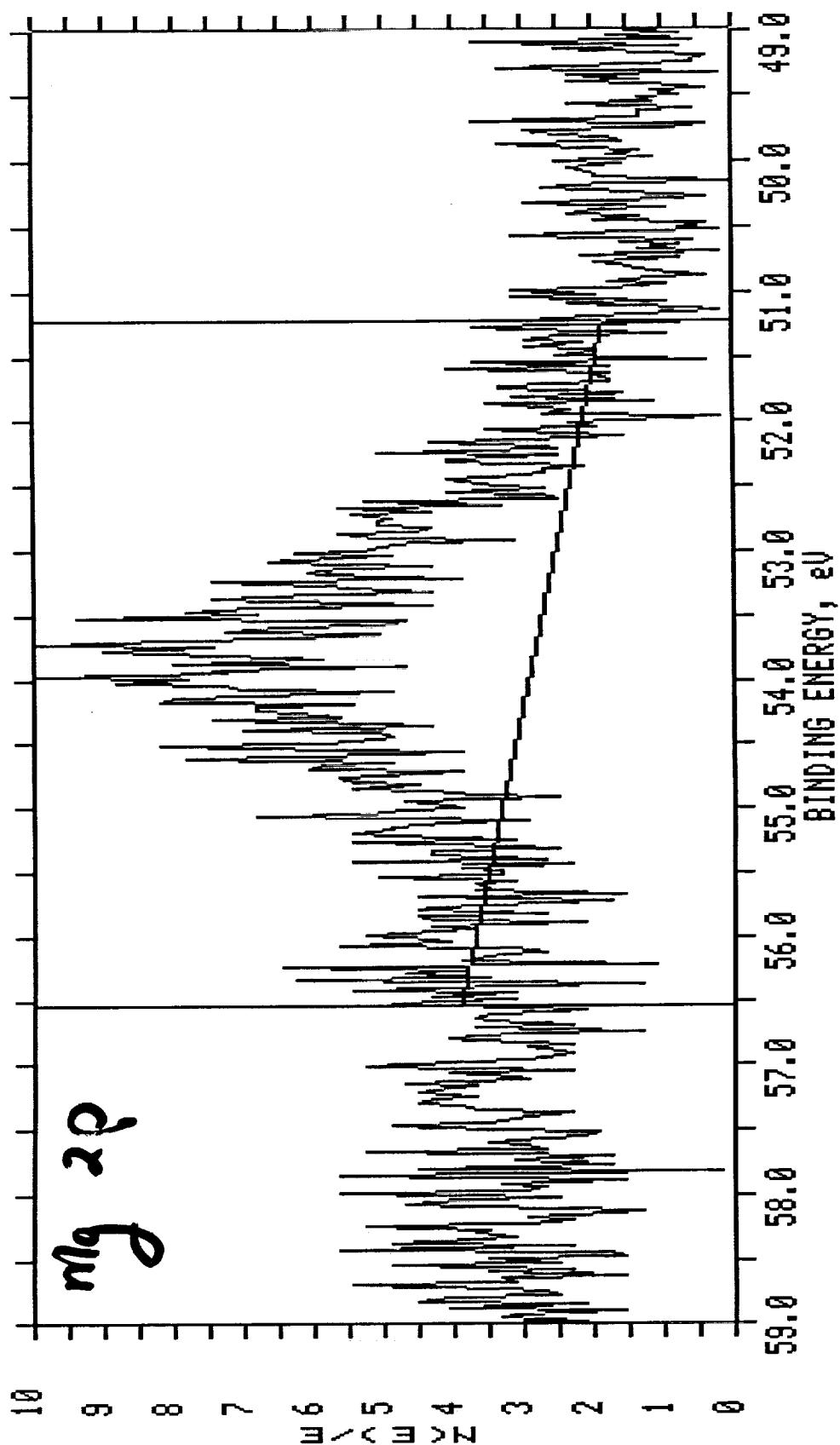
AC  
Table

Omit  
All

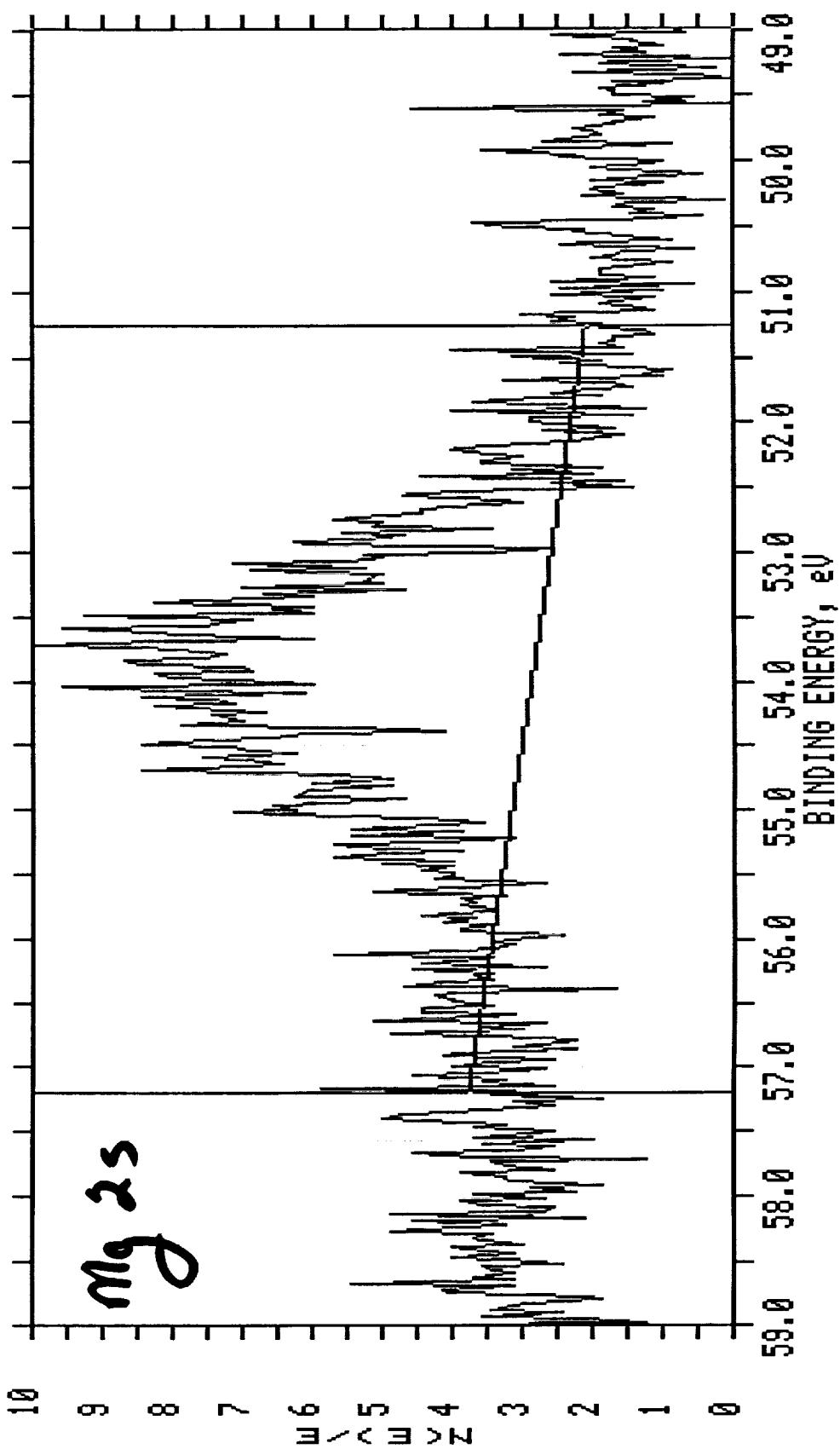
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All

Exit

ESCA MULTIPLEX 5/13/91 EL=Mg2 REG 7 ANGLE= 20 deg ACC TIME=8.35 min  
FILE: H23B-3 halar sample: front side  
SCALE FACTOR, OFFSET=0.008, 1.264 K C/S PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Mg2 REG 7 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: H23C\_3 halair samp|e: edge Piece  
SCALE FACTOR, OFFSET=0.011, 1.259 K c/s PASS ENERGY=8.950 ev Mg 300 W



on Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 11:37

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5 6 7

Atomic Concentration Table

File: H23C\_3

Comment: halar sample: edge piece

Input Lens: Large Area Omni Focus

Element	Concentration(%)	Sens. Factor
F1s	15.31	1.000
O1s	18.81	0.711
C1s	60.43	0.296
Cl2p	1.36	0.891
Si2p	2.48	0.339
W4f	0.08	3.523
Mg2p	1.53	0.153

AC  
Table

Omit  
All

Exit

Ion Gun:OFF X-ray:OFF Mg

Technique:ESCA

0.6mPa

5/13/91 18:33

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5 6 7

Atomic Concentration Table

File: H23B\_3

Comment: halar sample: front side

Input Lens: Large Area Omni Focus

Element|Concentration(%)|Sens. Factor

F1s	20.38		1.000
O1s	15.23		0.711
C1s	58.26		0.296
Cl2p	2.88		0.891
Si2p	2.06		0.339
W4f	0.11		3.523
Mg2p	1.09		0.153

AC  
Table

AC to AC  
Summary Omit  
All

Exit

on Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 11:39

Atomic Concentration (%) Summary Table

Screen 1 of 1

Page 1 of 1

Angle/	O1s	C12p	W4f		
File Name	Cycle	F1s	C1s	Si2p	Mg2p

23A_2		11.20 29.47 46.97	1.42 10.94	-*	-*	bottom
23B_3		20.38 15.23 58.26	2.88 2.06	0.11	1.09	top
23C_3		15.31 18.81 60.43	1.36 2.48	0.08	1.53	edge

Halar Sample

\* - W may be present as trace amount (< 0.1%)  
\*\* - Mg may be present (~1%)  
This is only a ghost peak of the C

Print  
Summary

Delete  
Entry

Clear AC  
Summary

Exit

Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/13/91 16:58

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5

Atomic Concentration Table

File: H23A\_2

Comment: halar sample: backside

Input Lens: Large Area Omni Focus

Element	Concentration(%)	Sens. Factor
F1s	11.20	1.000
O1s	29.47	0.711
C1s	46.97	0.296
Cl2p	1.42	0.891
Si2p	10.94	0.339

AC  
Table

AC to AC  
Summary

Omit  
All

Exit



Ion Gun:OFF X-ray:OFF Mg

0.6mPa

Technique:ESCA

5/14/91 15:30

Atomic Concentration (%) Summary Table

Screen 1 of 1  
Page 1 of 1

Angle/| C1s Sn3d5

1 File Name Cycle| O1s Si2p

=====  
RTV511A\_3 | 31.94 51.47 16.22 0.37 bottom  
RTV511B\_3 | 38.03 40.27 20.97 0.73 top  
RTV511C\_2 | 38.93 42.79 17.32 0.96 edge

RTV511 Sample

Print Delete  
Summary Entry

Clear AC Exit  
Summary

Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 13:56

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4

Atomic Concentration Table

File: RTV511A\_3

Comment: RTV511 sample: bottom side

Input Lens: Large Area Omni Focus

Element	Concentration(%)	Sens. Factor
O1s	31.94	0.711
C1s	51.47	0.296
Si2p	16.22	0.339
Sn3d5	0.37	4.725

AC

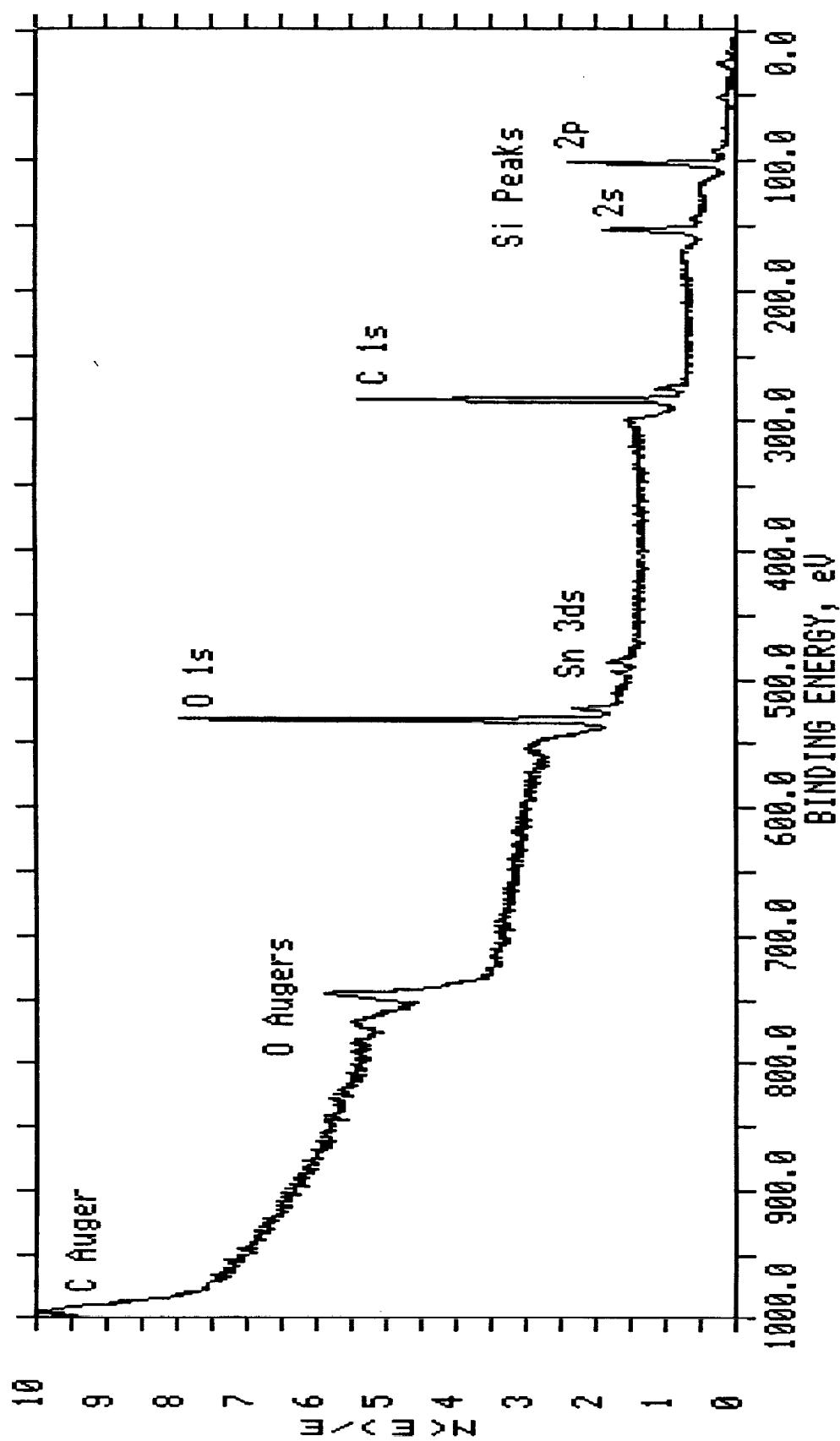
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Exit

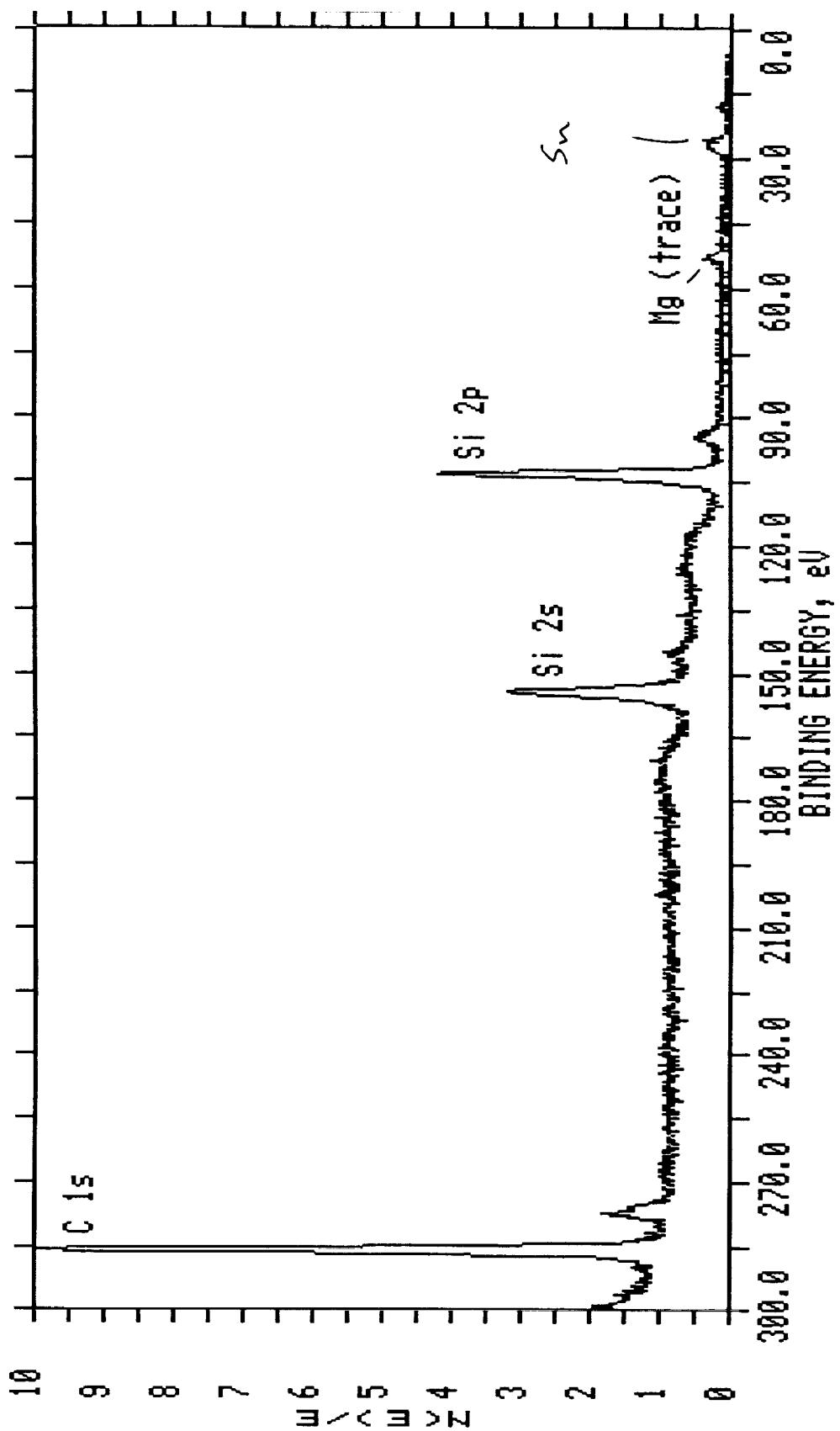
Table

All

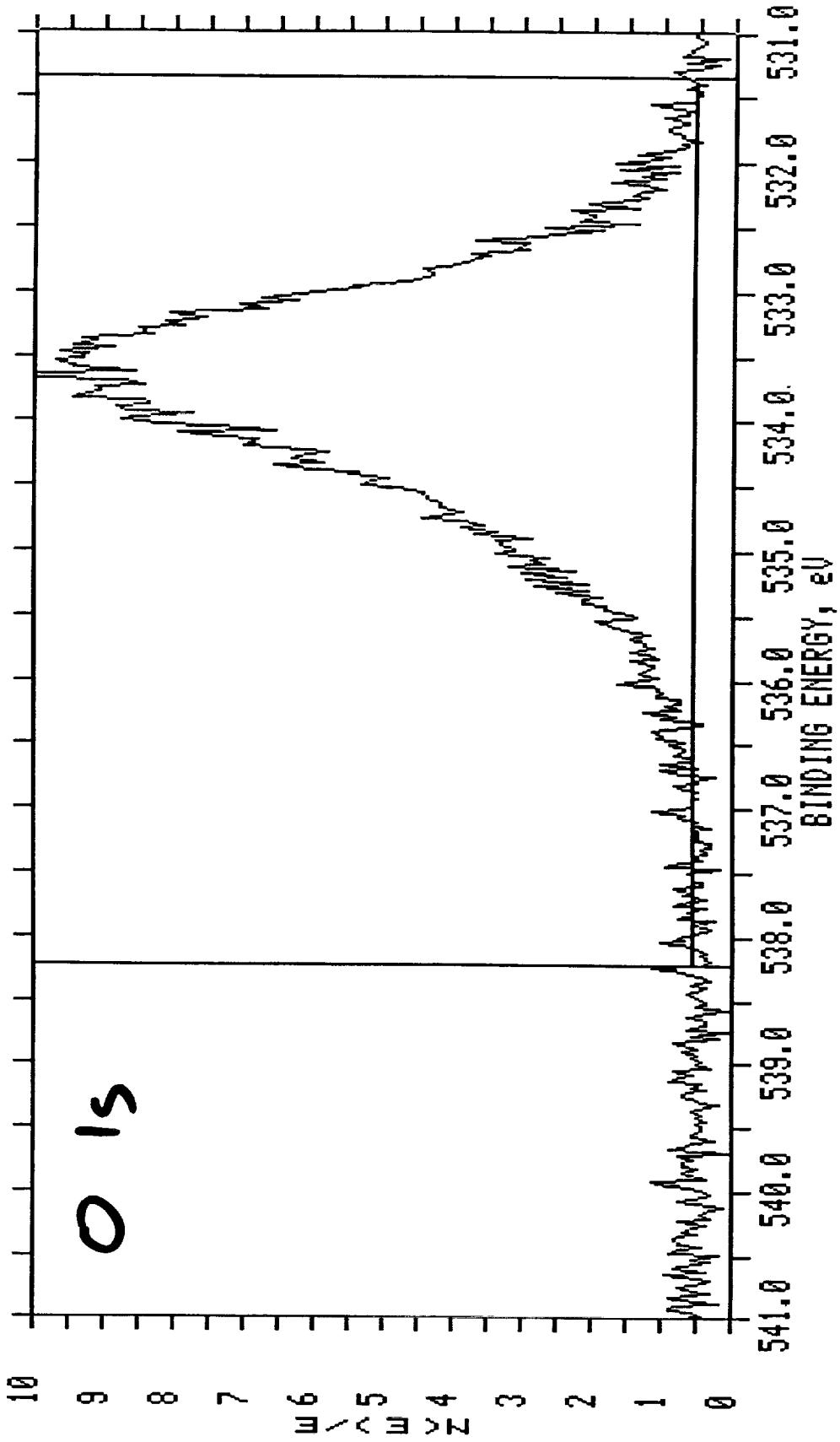
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FILE: RTV511A\_1 RTV511 sample: bottom side  
SCALE FACTOR, OFFSET=6.387, 1.584 K c/s PASS ENERGY=89.450 eV Mg 300 W



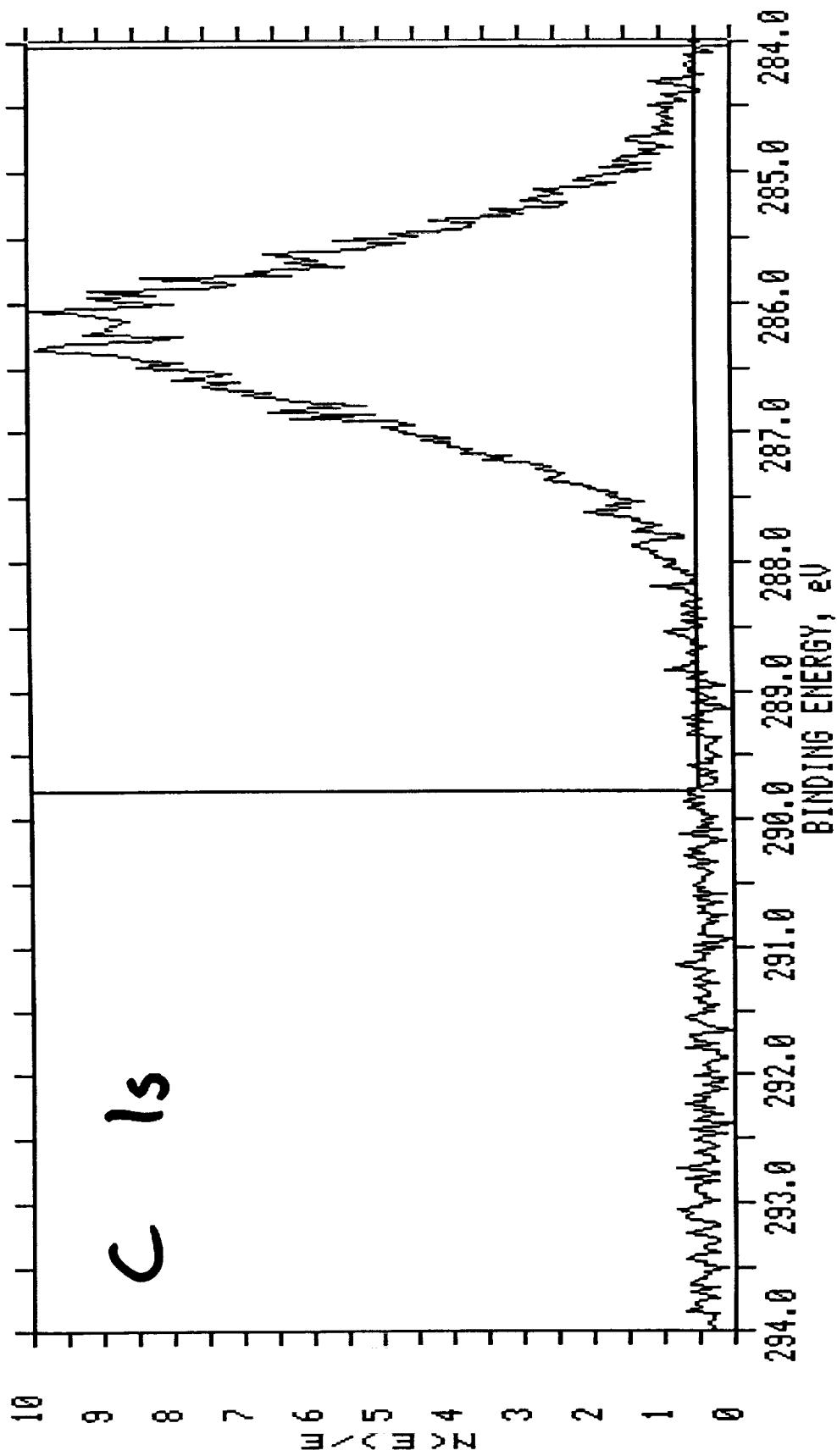
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACQ TIME=8.76 min  
FILE: RTU511A\_2 RTU511 sample: bottom side  
SCALE FACTOR, OFFSET=1.139, 1.263 K c/s PASS ENERGY=35.750 eV Mg 300 W



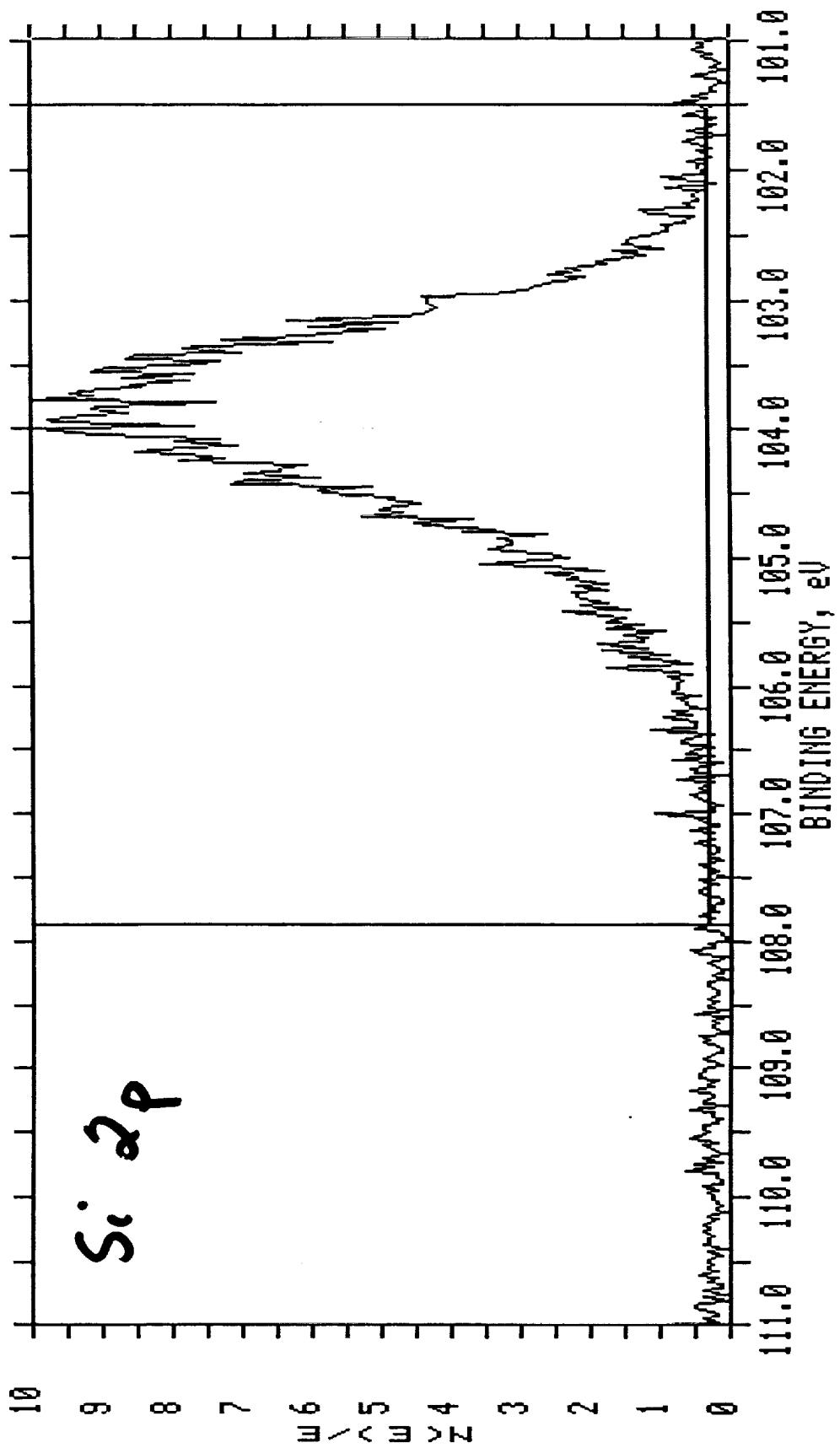
ESCA MULTIPLEX 5/14/91 EL=01 REG 1 ANGLE= 20 deg ACO TIME=1.67 min  
FILE: RTU511A\_3 RTU511 sample: bottom side  
SCALE FACTOR, OFFSET=0.237, 1.432 K c/s PASS ENERGY=8.950 eV Mg 300 W



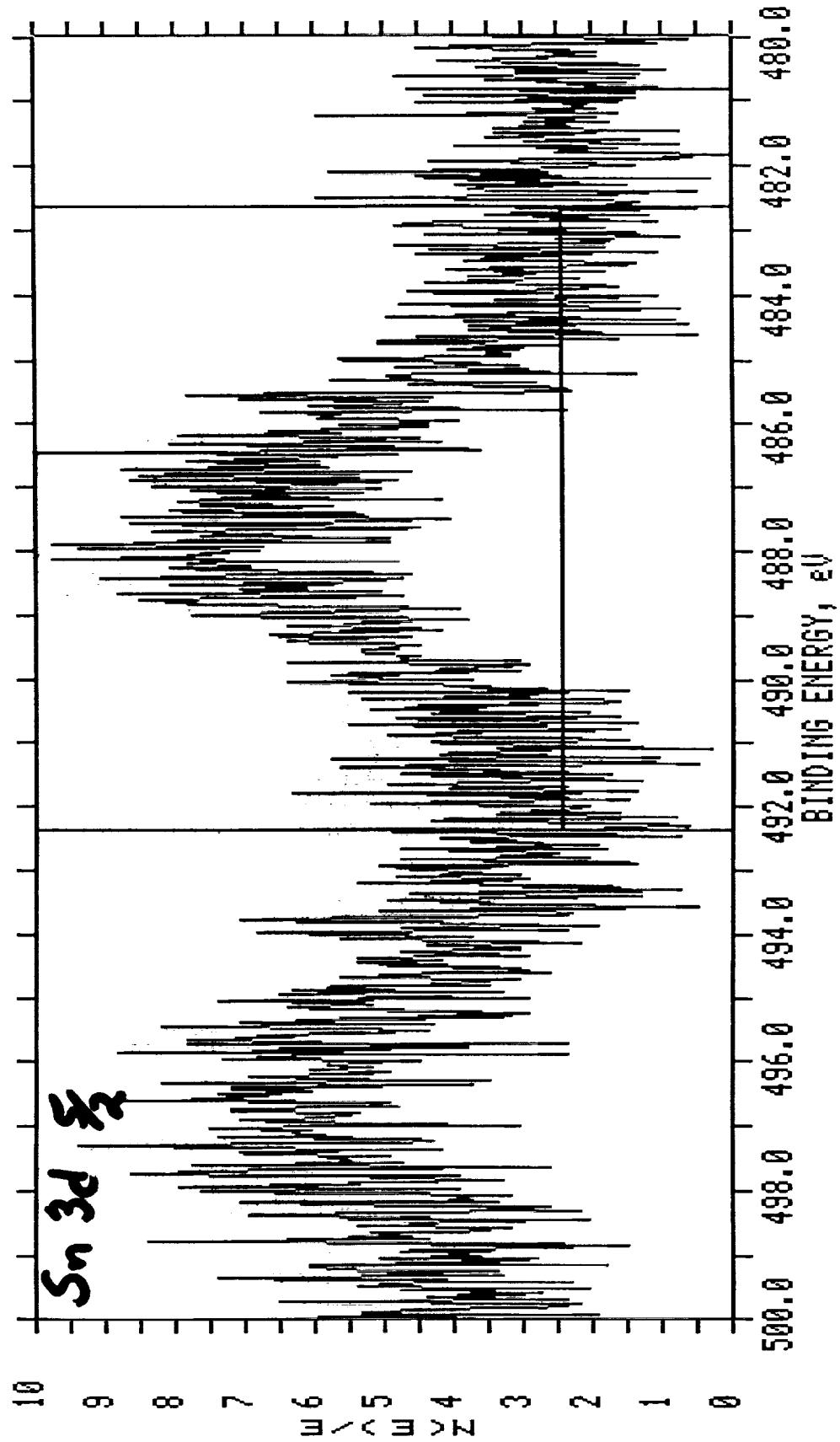
ESCA MULTIPLEX 5/14/91 EL=C1 REG 2 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: RTU511A\_3 RTU511 sample: bottom side  
SCALE FACTOR, OFFSET=0.186, 1.280 K C/S PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Si1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: RTU511A\_3 RTU511 sample: bottom side  
SCALE FACTOR, OFFSET=0.061, 1.244 K c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=SnI REG 4 ANGLE= 20 deg ACQ TIME=16.69 min  
FILE: RTU511A\_3 RTU511 sample: bottom side  
SCALE FACTOR, OFFSET=0.014, 1.418 K c/s PASS ENERGY=8.950 eV Mg 300 W





Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 14:55

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4

Atomic Concentration Table

File: RTV511B\_3

Comment: RTV511 sample: top side

Input Lens: Large Area Omni Focus

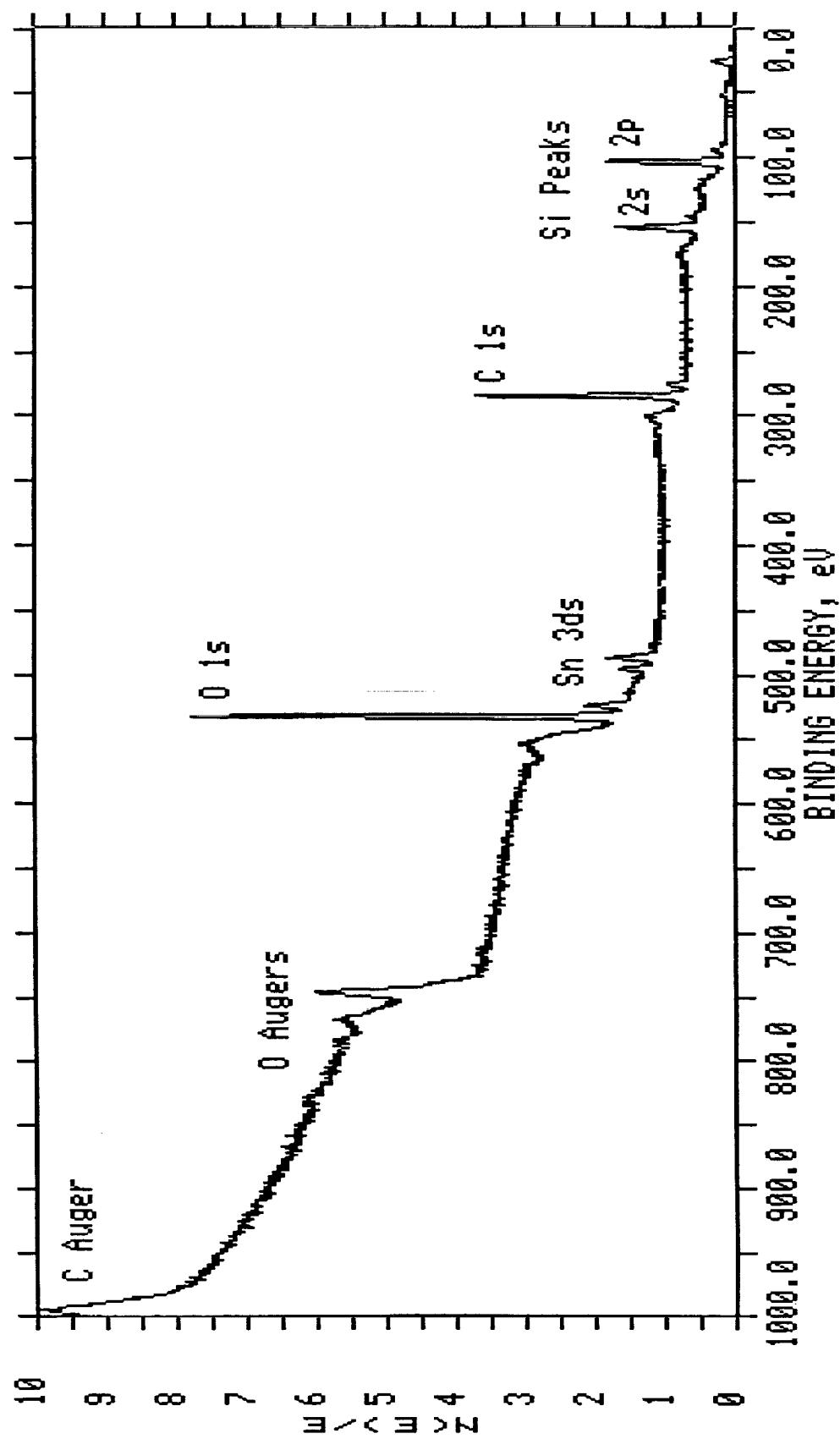
Element	Concentration(%)	Sens. Factor
O1s	38.03	0.711
C1s	40.27	0.296
Si2p	20.97	0.339
Sn3d5	0.73	4.725

AC  
Table

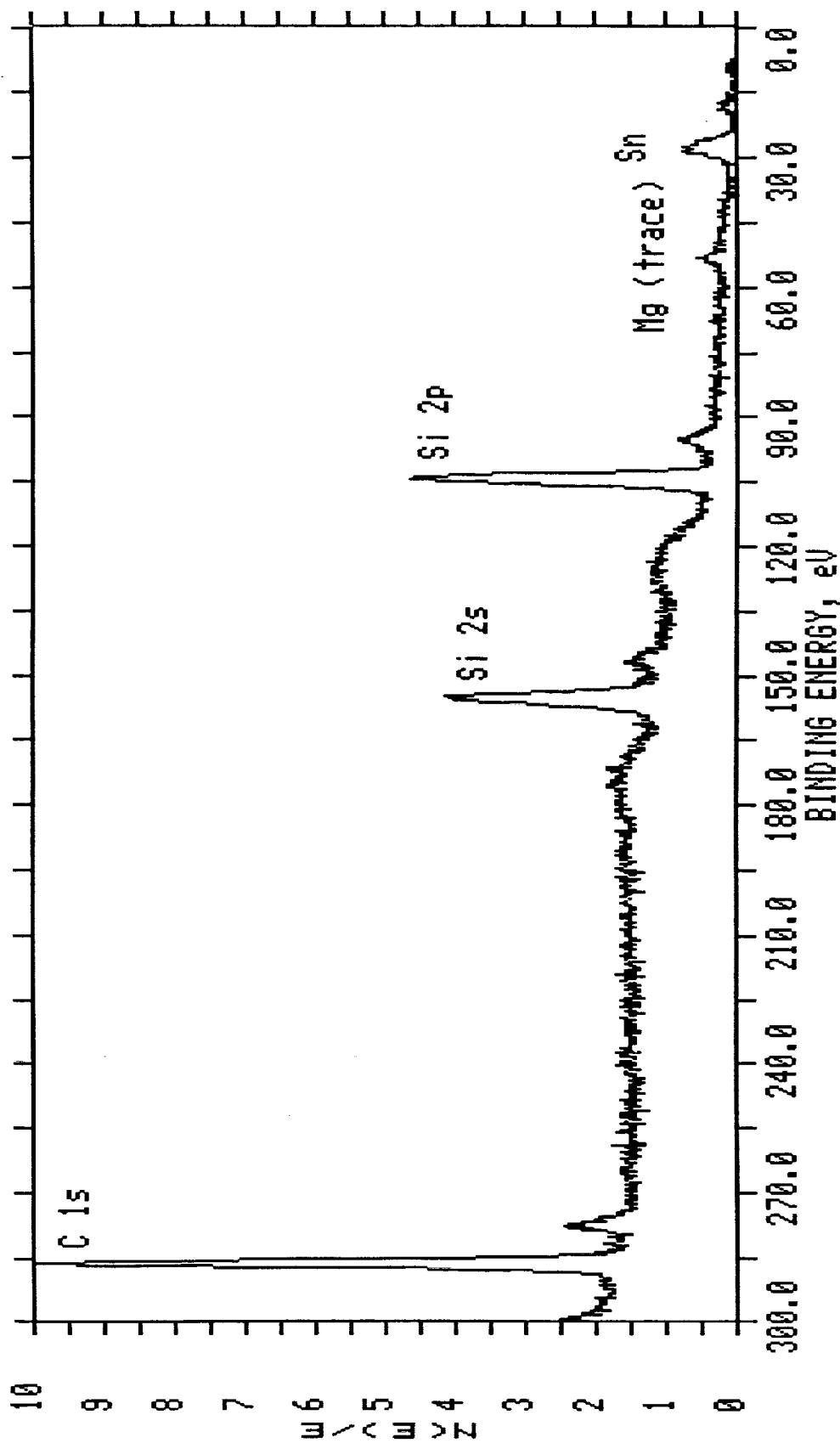
Omit  
All

Exit

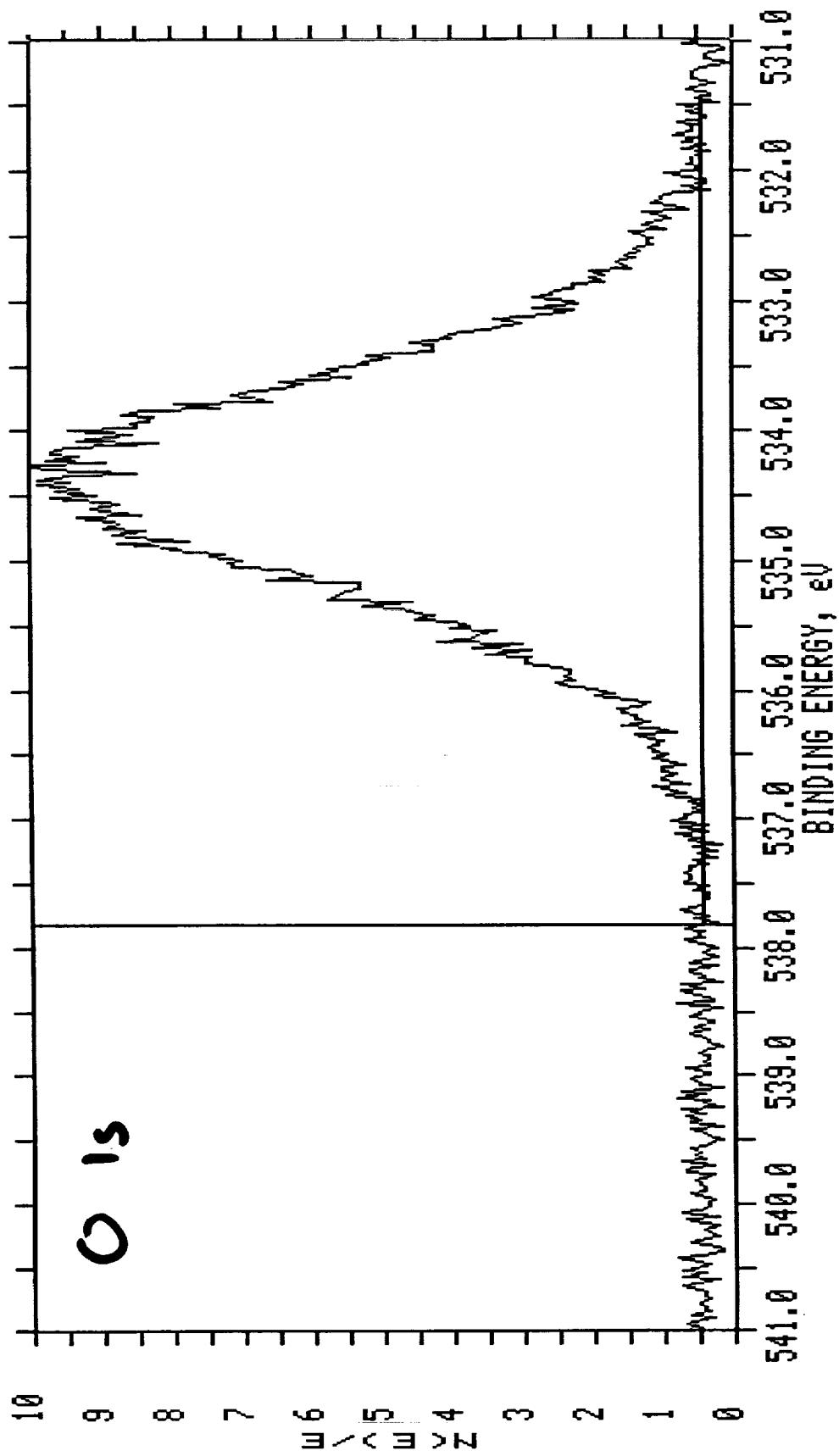
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACO TIME=8.34 min  
FILE: RTV511B\_1 RTV511 sample: top side  
SCALE FACTOR, OFFSET=9.474, 1.944 K C/S PASS ENERGY=89.450 eV Mg 300 W



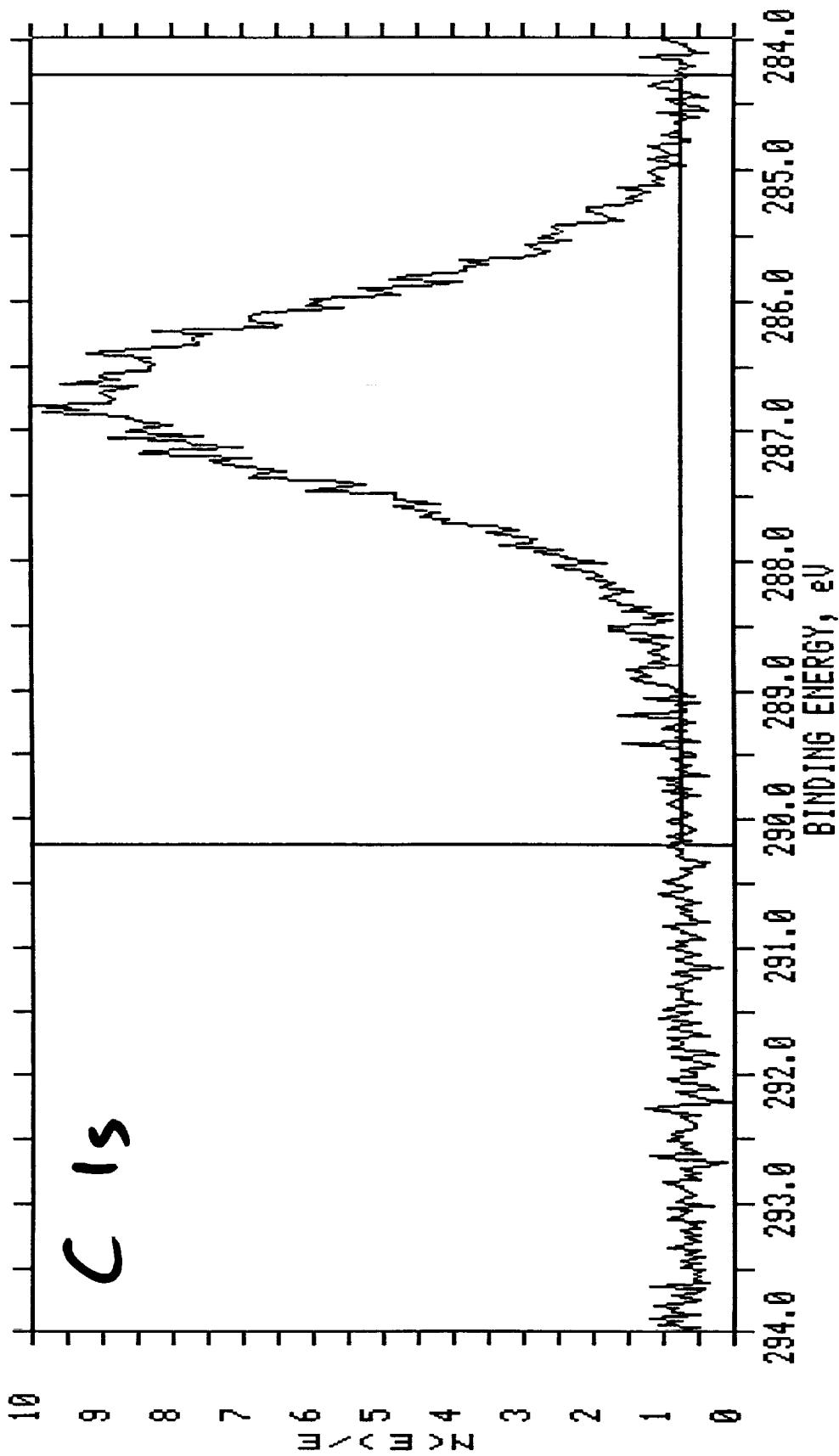
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACQ TIME=8.76 min  
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SCALE FACTOR, OFFSET=1.162, 1.326 K c/s PASS ENERGY=35.750 eV Mg 300 W



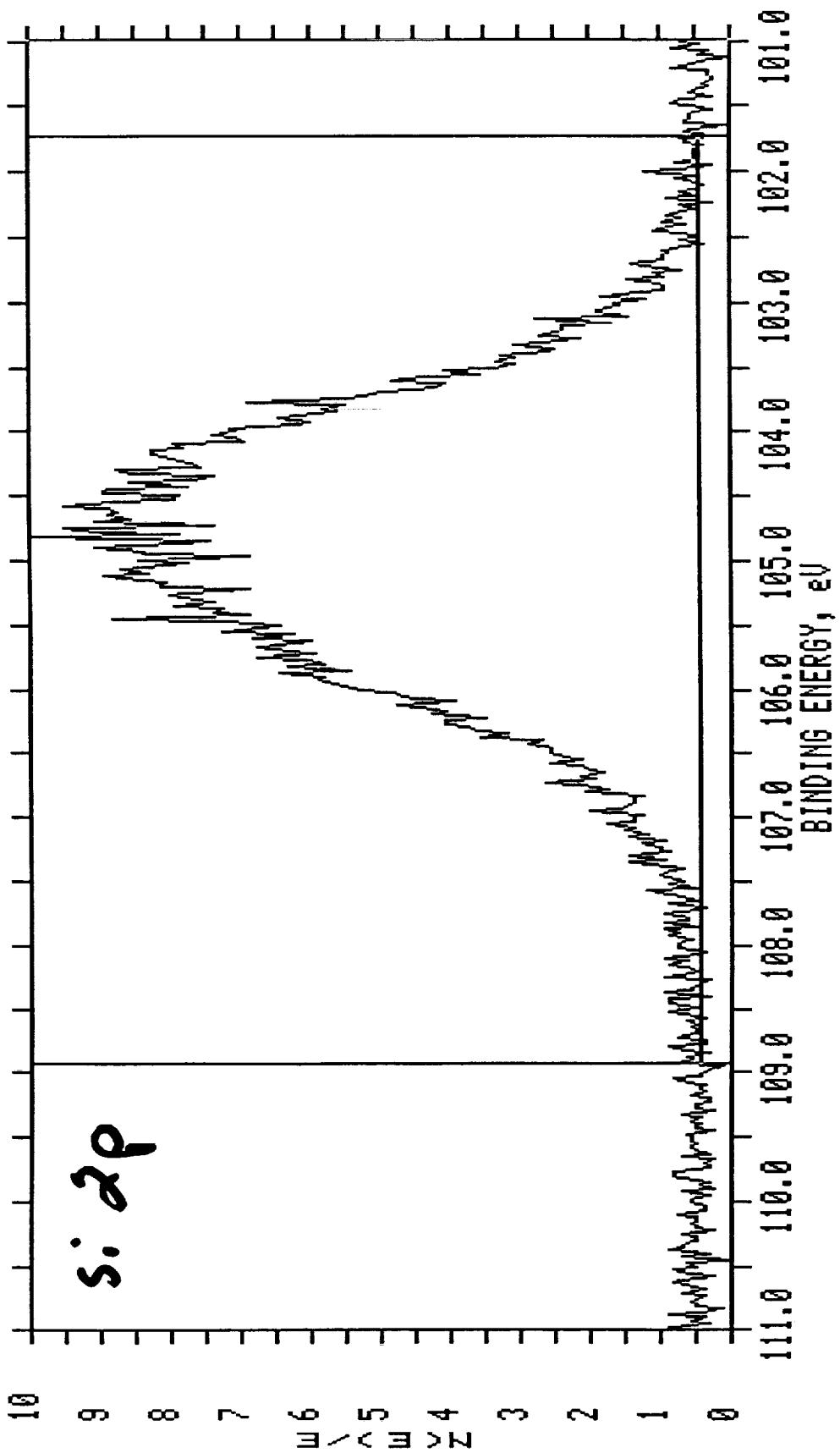
ESCA MULTIPLEX 5/14/91 EL=01 REG 1 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: RTV511B\_3 RTV511 sample: top side  
SCALE FACTOR, OFFSET=0.344, 1.616 K C/S PASS ENERGY=8.950 eV Ng 300 W



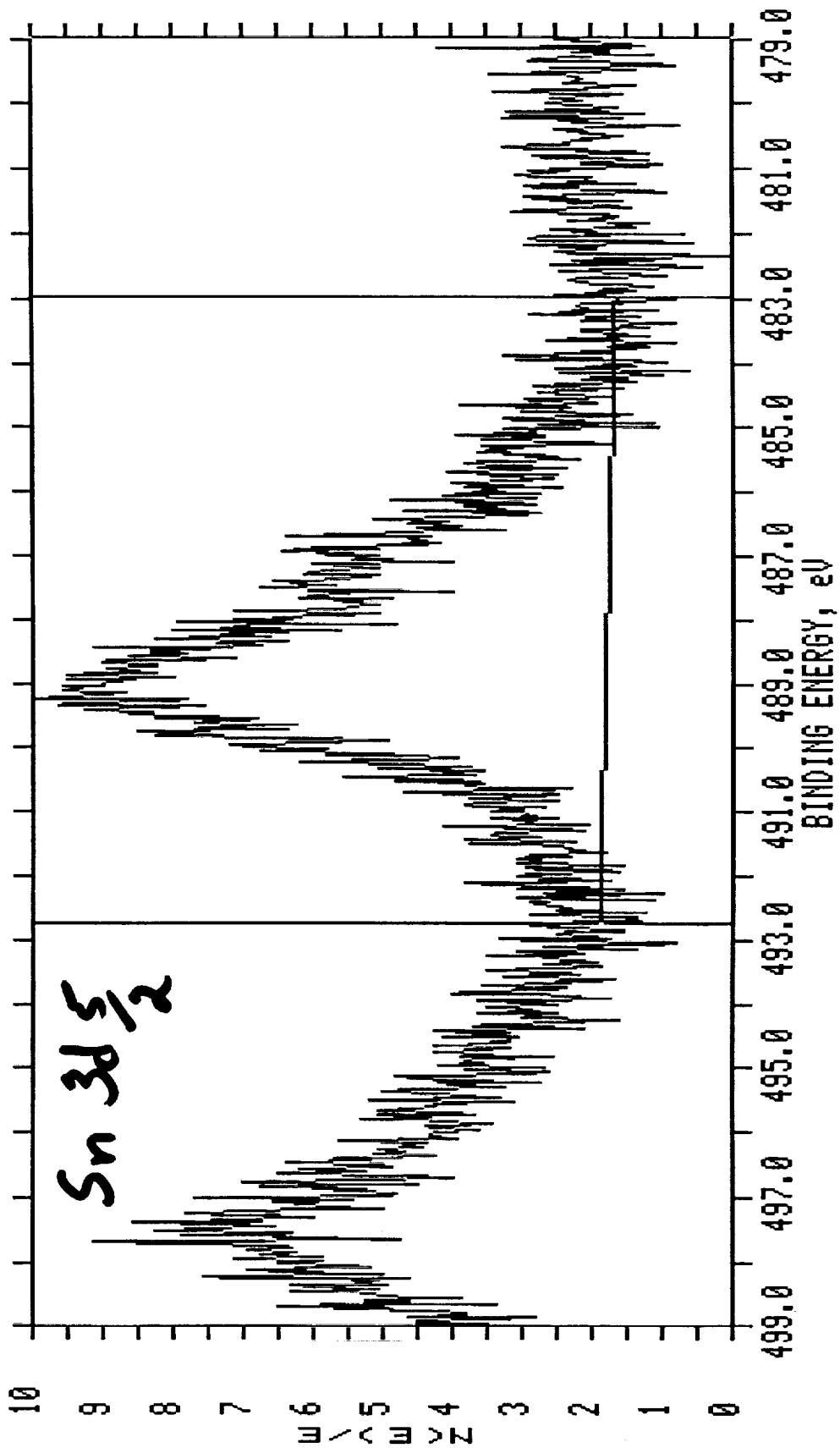
ESCA MULTIPLEX 5/14/91 EL=C1 REG 2 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: RTV511B\_3 RTV511 sample: top side  
SCALE FACTOR, OFFSET=0.197, 1.328 K c/s PASS ENERGY=8.950 eV Mg 300 W

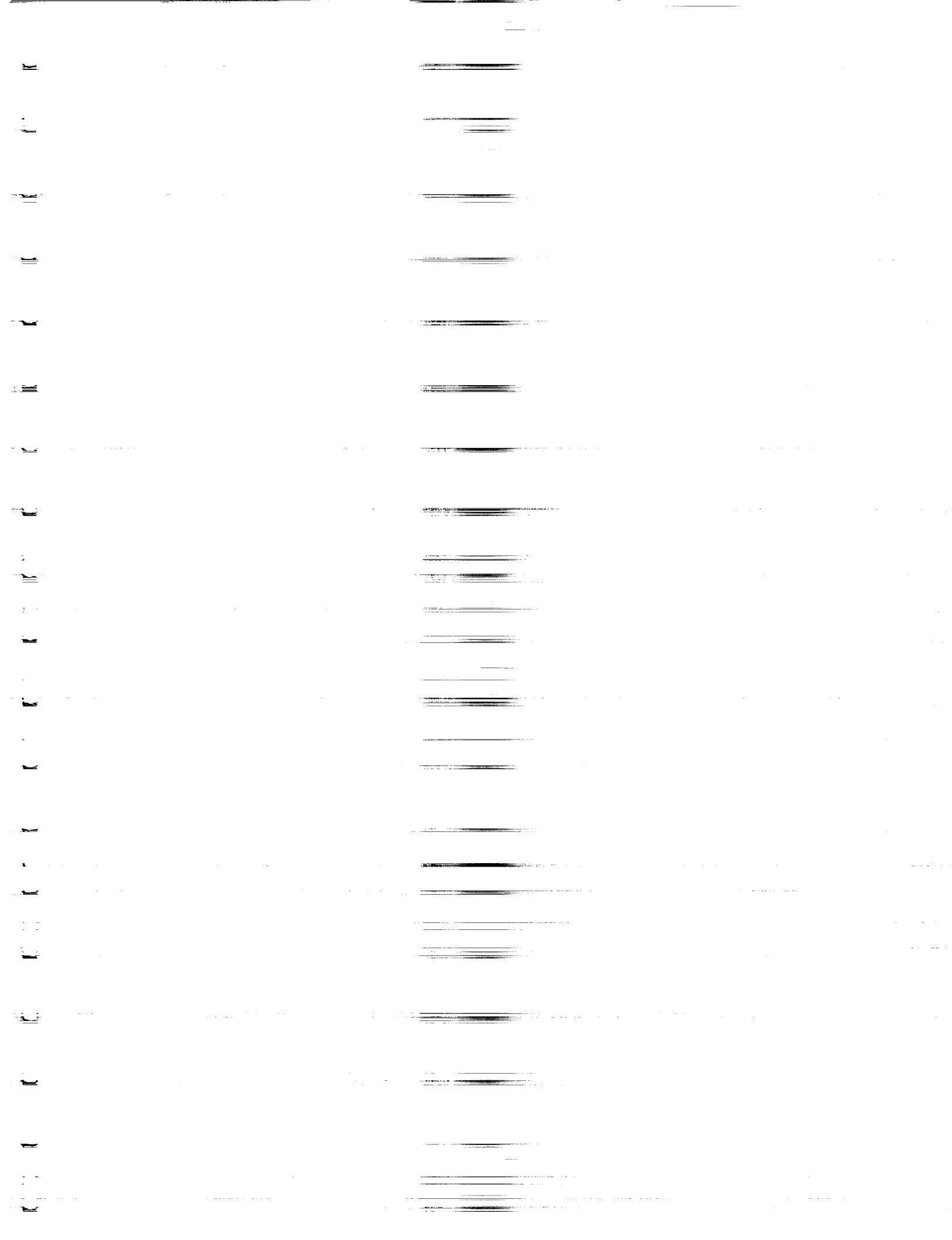


ESCA MULTIPLEX 5/14/91 EL=Si1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: RTU511B\_3 RTU511 sample: top side  
SCALE FACTOR, OFFSET=0.081, 1.252 K c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Sn1 REG 4 ANGLE= 20 deg ACQ TIME=16.69 min  
FILE: RTU511B\_3 RTU511 sample: top side  
SCALE FACTOR, OFFSET=0.034, 1.493 K c/s PASS ENERGY=8.950 eV Mg 300 W





Ion Gun:OFF X-ray:OFF Mg

0.6mPa

Technique:ESCA

5/14/91 15:29

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4

Atomic Concentration Table

File: RTV511C\_2

Comment: RTV511 sample: edge

Input Lens: Large Area Omni Focus

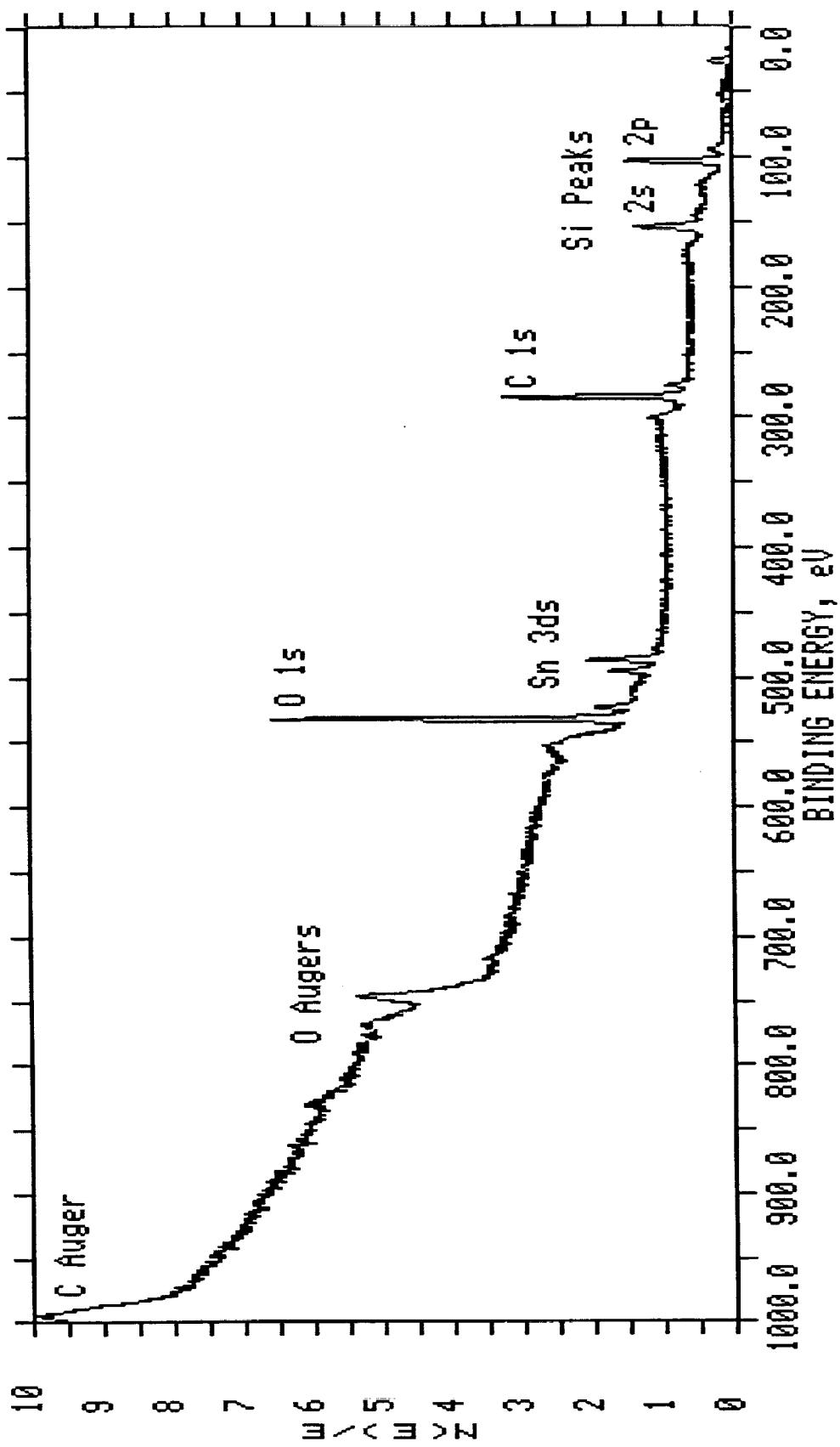
Element	Concentration(%)	Sens. Factor
O1s	38.93	0.711
C1s	42.79	0.296
Si2p	17.32	0.339
Sn3d5	0.96	4.725

AC  
Table

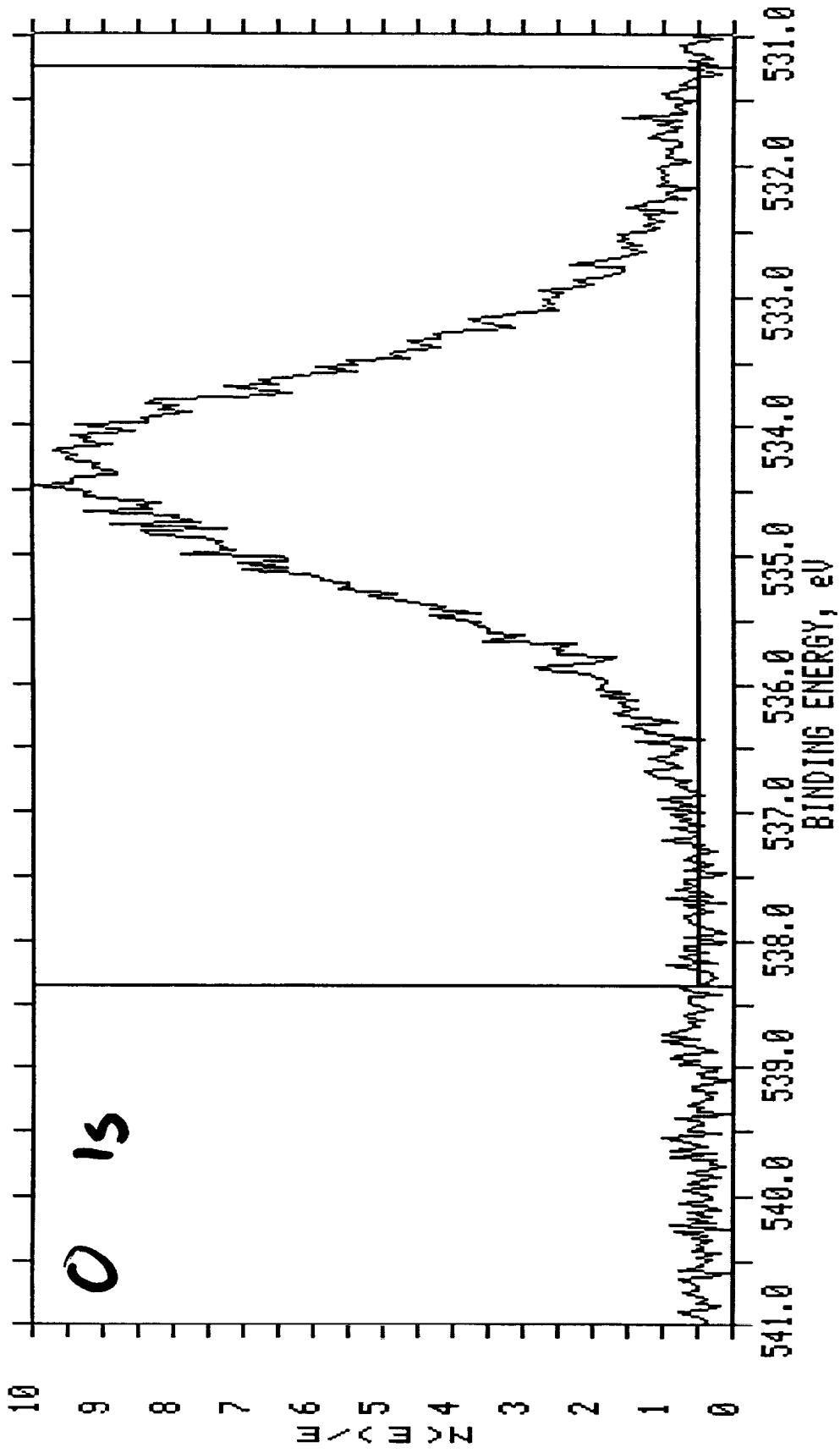
Omit  
All

Exit

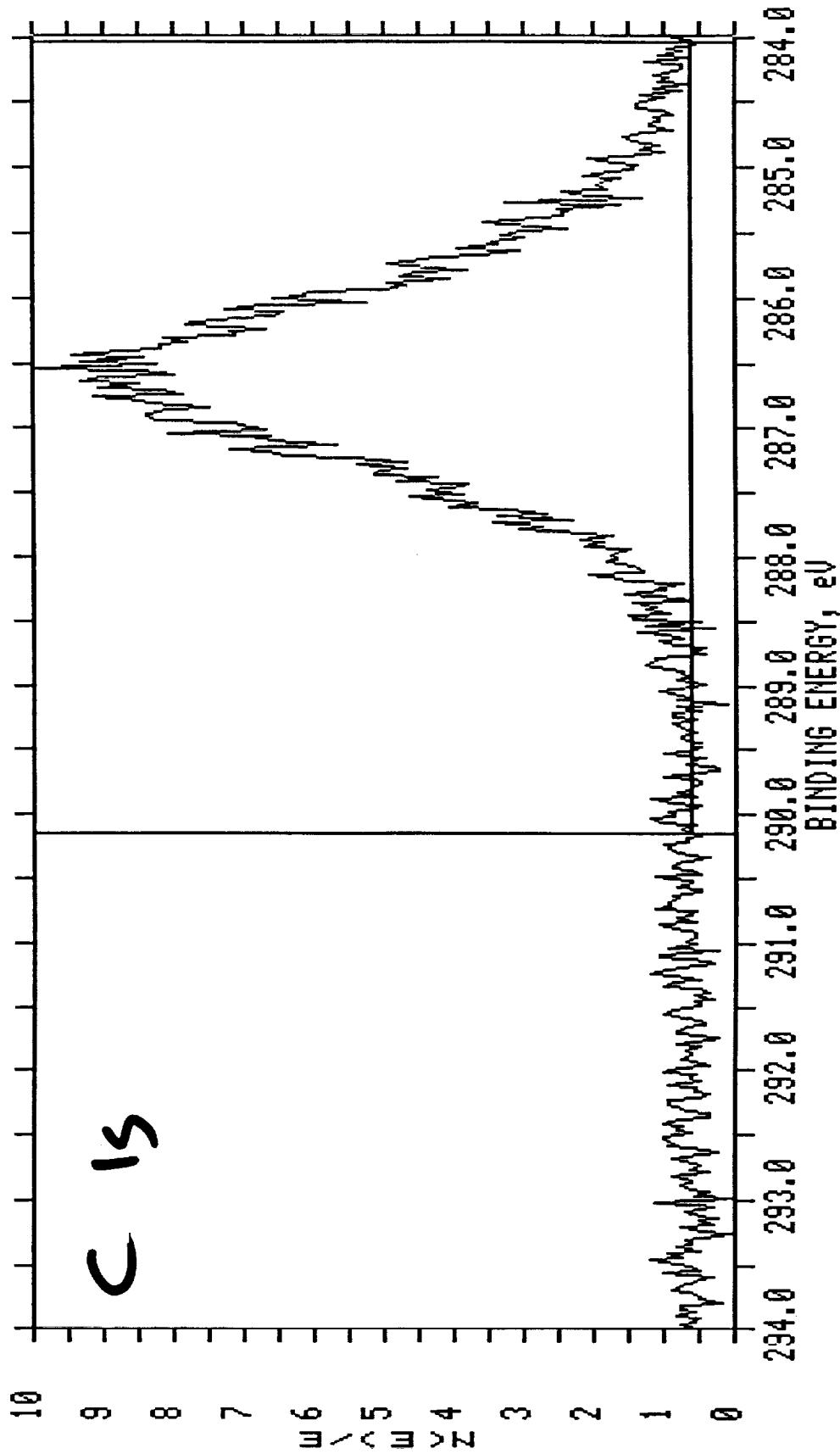
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACG TIME=8.34 min  
FILE: RTU511C\_1 RTU511 sample: edge  
SCALE FACTOR, OFFSET=7.935, 1.760 K C/s PASS ENERGY=89.450 eV Mg 300 W



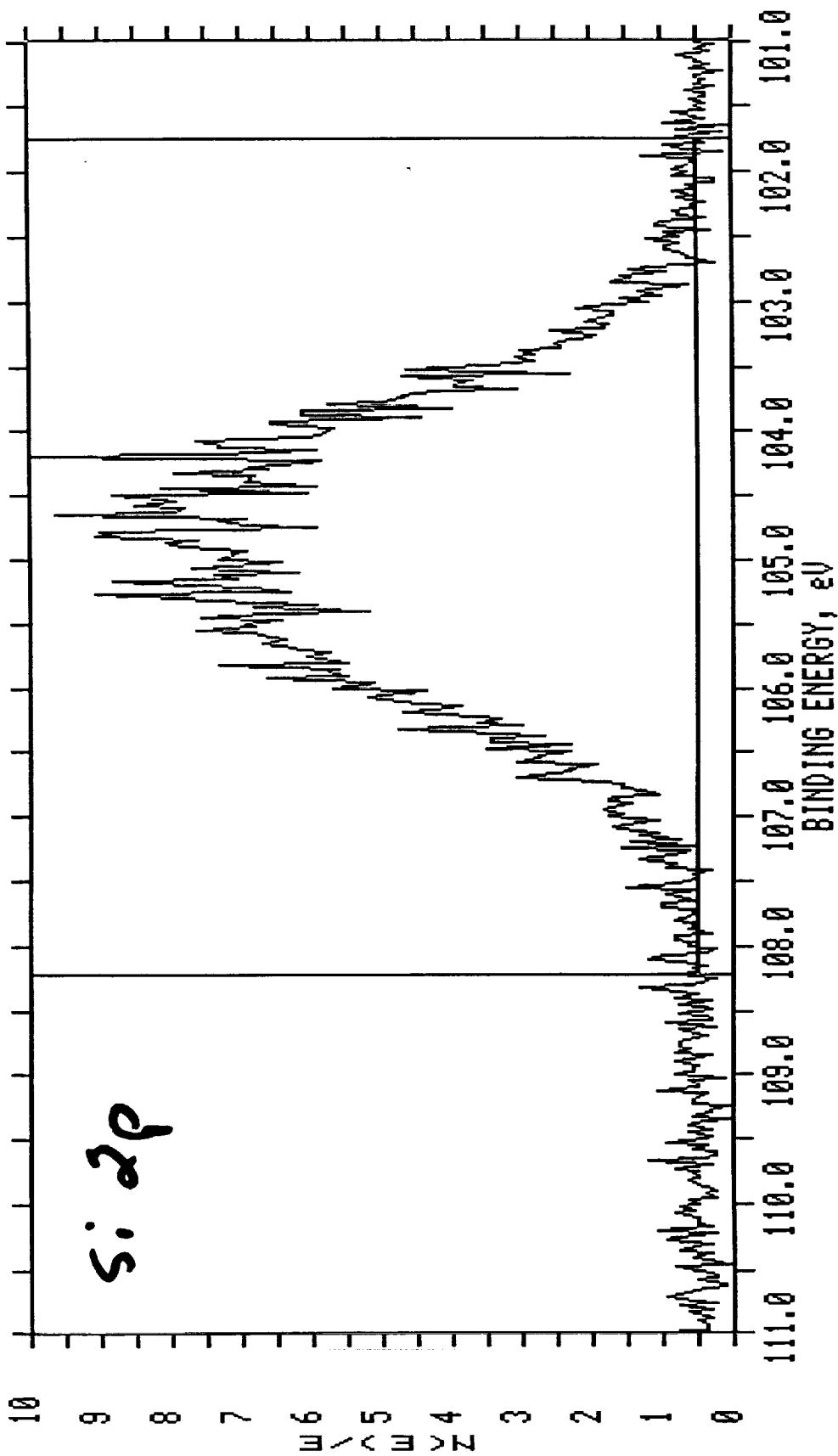
ESCA MULTIPLEX 5/14/91 EL=01 REG 1 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: RTU511C\_2 RTU511 sample: edge  
SCALE FACTOR, OFFSET=0.230, 1.464 K C/s PASS ENERGY=8.950 eV Mg 300 W



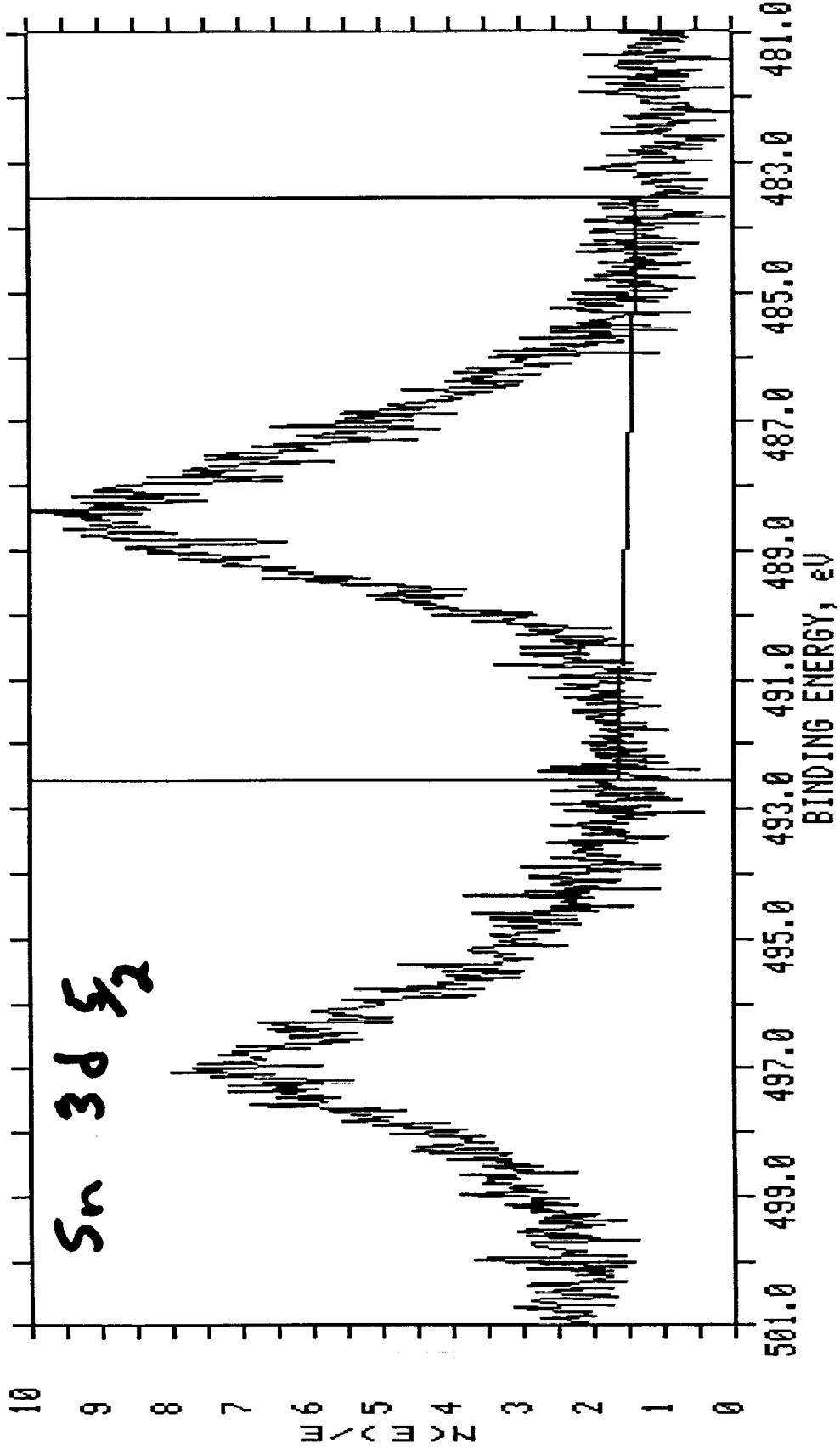
ESCA MULTIPLEX 5/14/91 EL=01 REG 2 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: RTU511C\_2 RTU511 sample: edge  
SCALE FACTOR, OFFSET=0.135, 1.288 K c/s PASS ENERGY=8.950 eV Mg 300 W

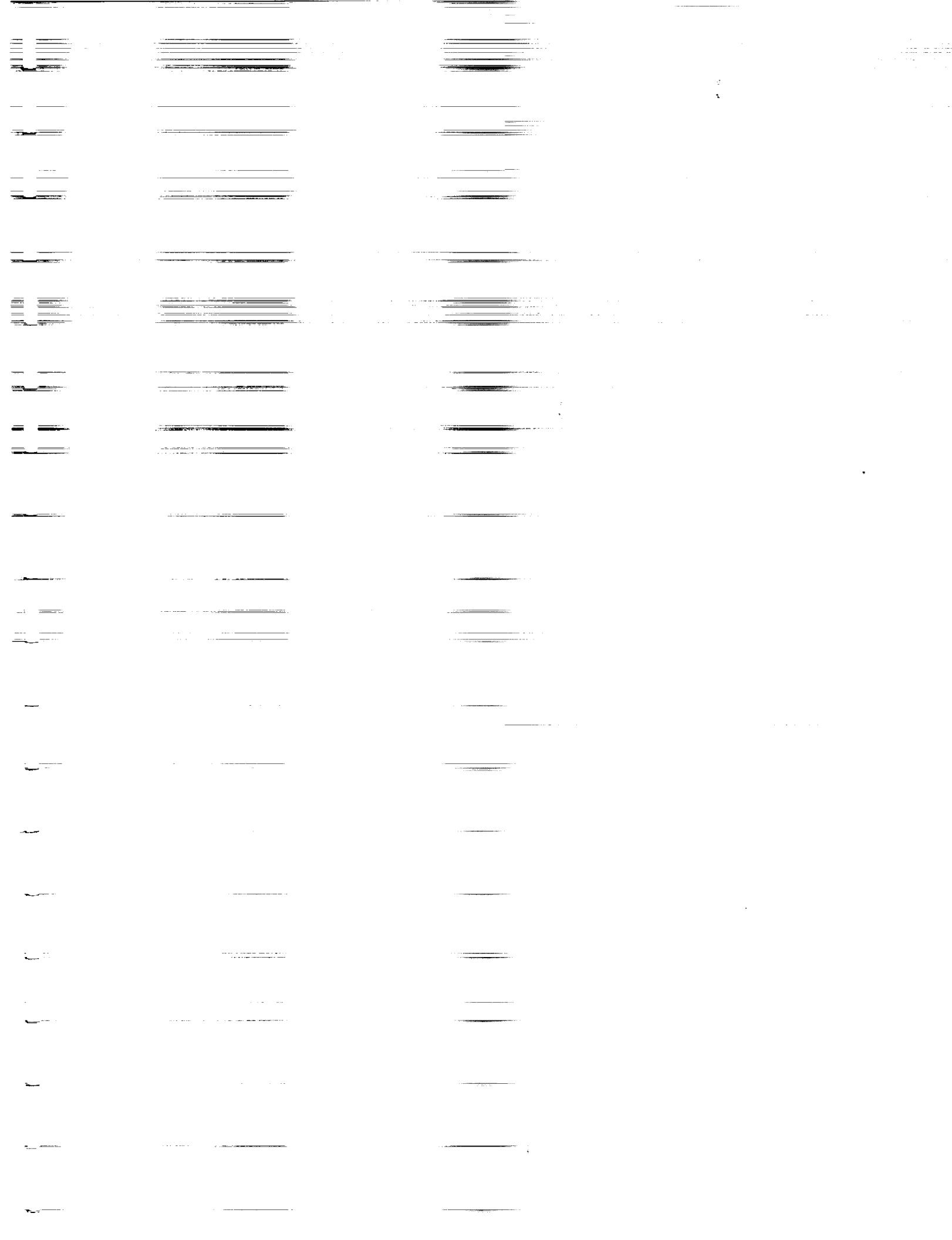


ESCA MULTIPLEX 5/14/91 EL=Si1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: RTU511C\_2 RTU511 sample: edge  
SCALE FACTOR, OFFSET=0.048, 1.244 K c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Sn1 REG 4 ANGLE= 20 deg ACQ TIME=16.69 min  
FILE: RTV511C\_2 RTV511 sample: edge  
SCALE FACTOR, OFFSET=0.035, 1.400 k e/s PASS ENERGY=8.950 eV Mg 300 W





-Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 11:39

Atomic Concentration (%) Summary Table

Screen 1 of 1  
Page 1 of 1

Angle/	O1s	C12p	W4f	
1 File Name	File	C1s	Si2p	Mg2p

H23A_2	11.20 29.47 46.97 1.42 10.94 -*	-** bottom
H23B_3	20.38 15.23 58.26 2.88 2.06 0.11 1.09	top
H23C_3	15.31 18.81 60.43 1.36 2.48 0.08 1.53	edge

Halar Sample

\* - W may be present as trace amount (< 0.1%)  
\*\* - Mg may be present (~ 1%)

Print      Delete  
Summary    Entry

Clear AC    Exit  
Summary

Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/13/91 16:58

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5

Atomic Concentration Table

File: H23A\_2

Comment: halar sample: backside

Input Lens: Large Area Omni Focus

Element	Concentration(%)	Sens. Factor
F1s	11.20	1.000
O1s	29.47	0.711
C1s	46.97	0.296
Cl2p	1.42	0.891
Si2p	10.94	0.339

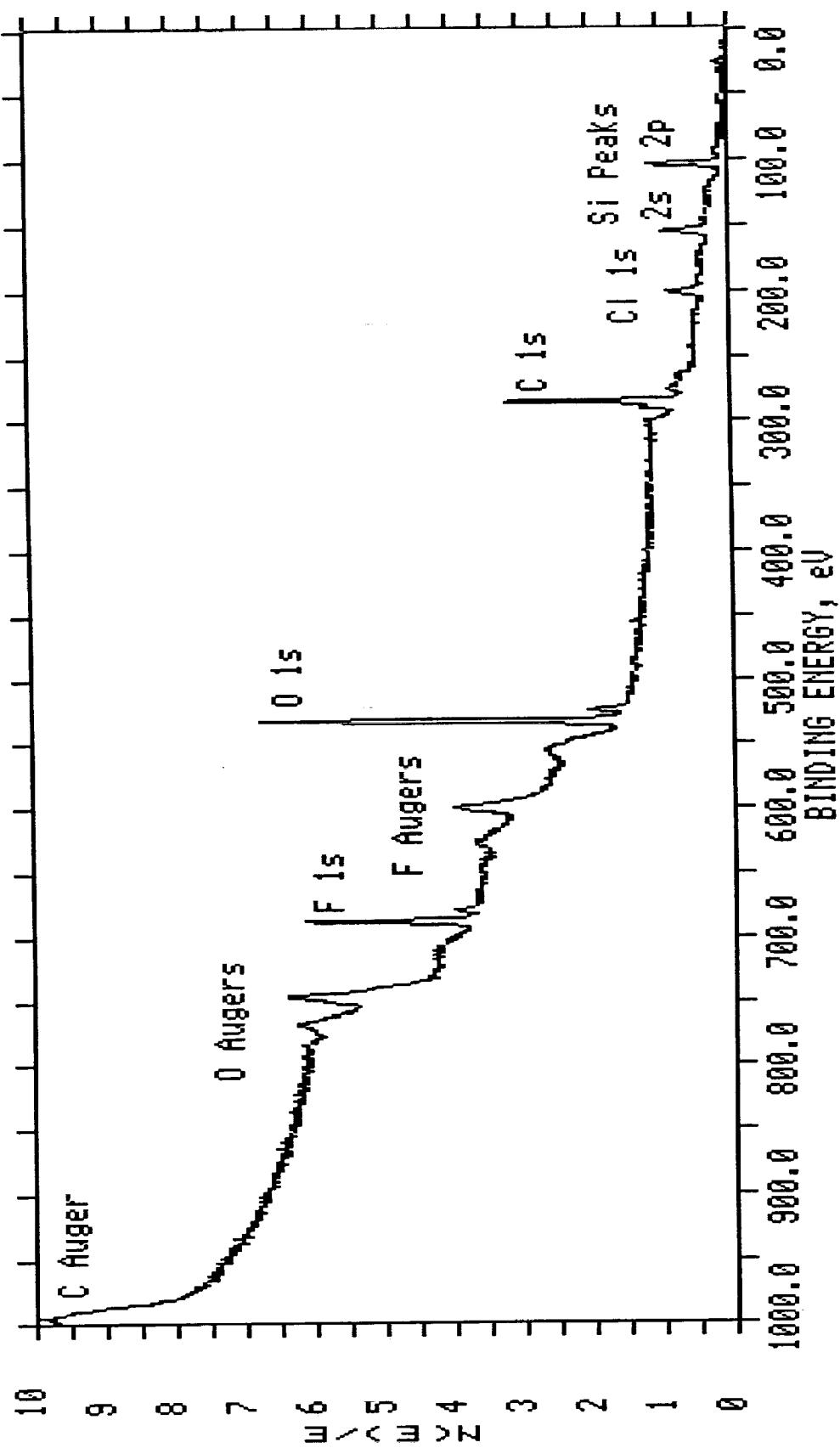
AC  
Table

AC to AC  
Summary

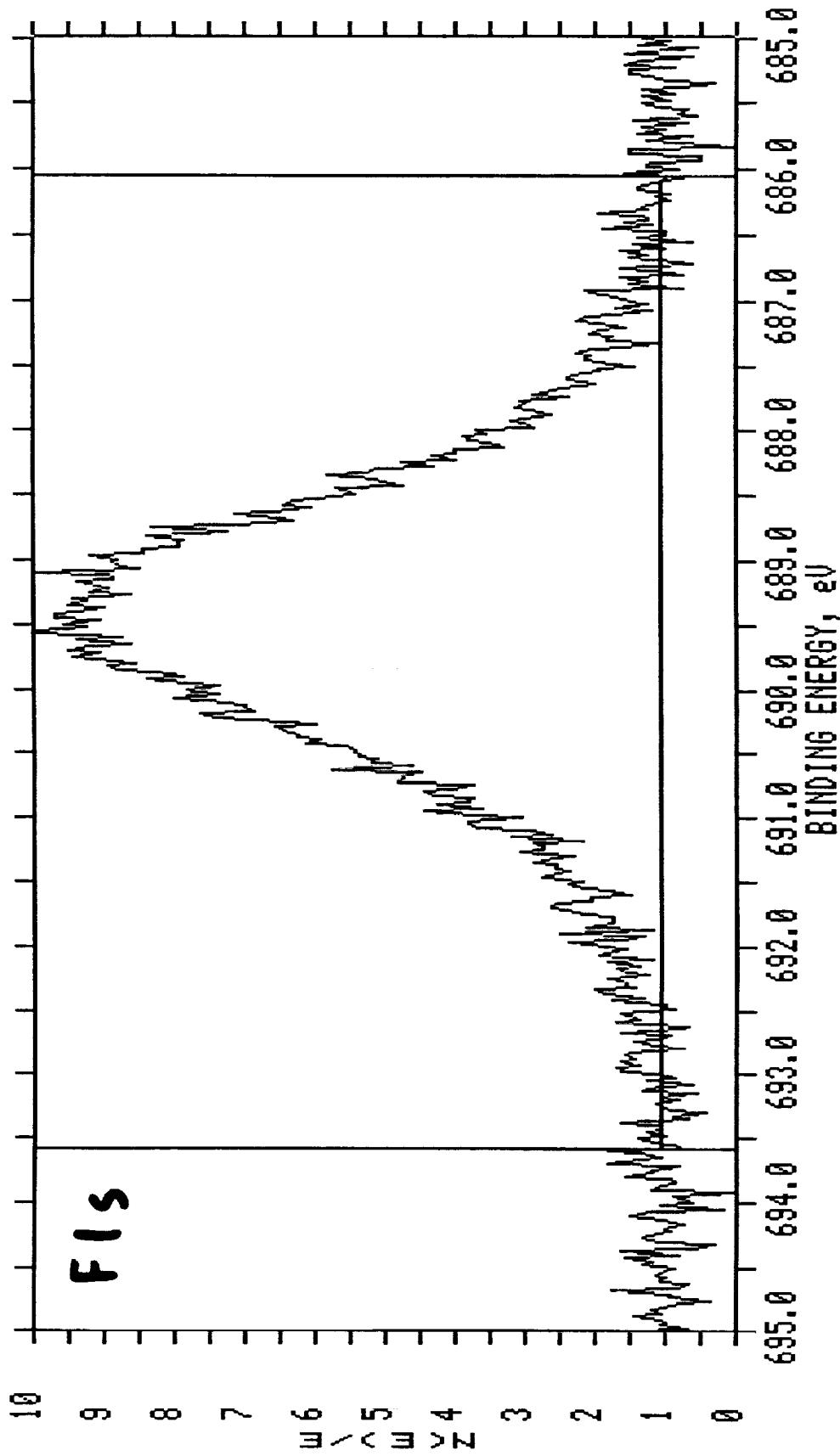
Omit  
All

Exit

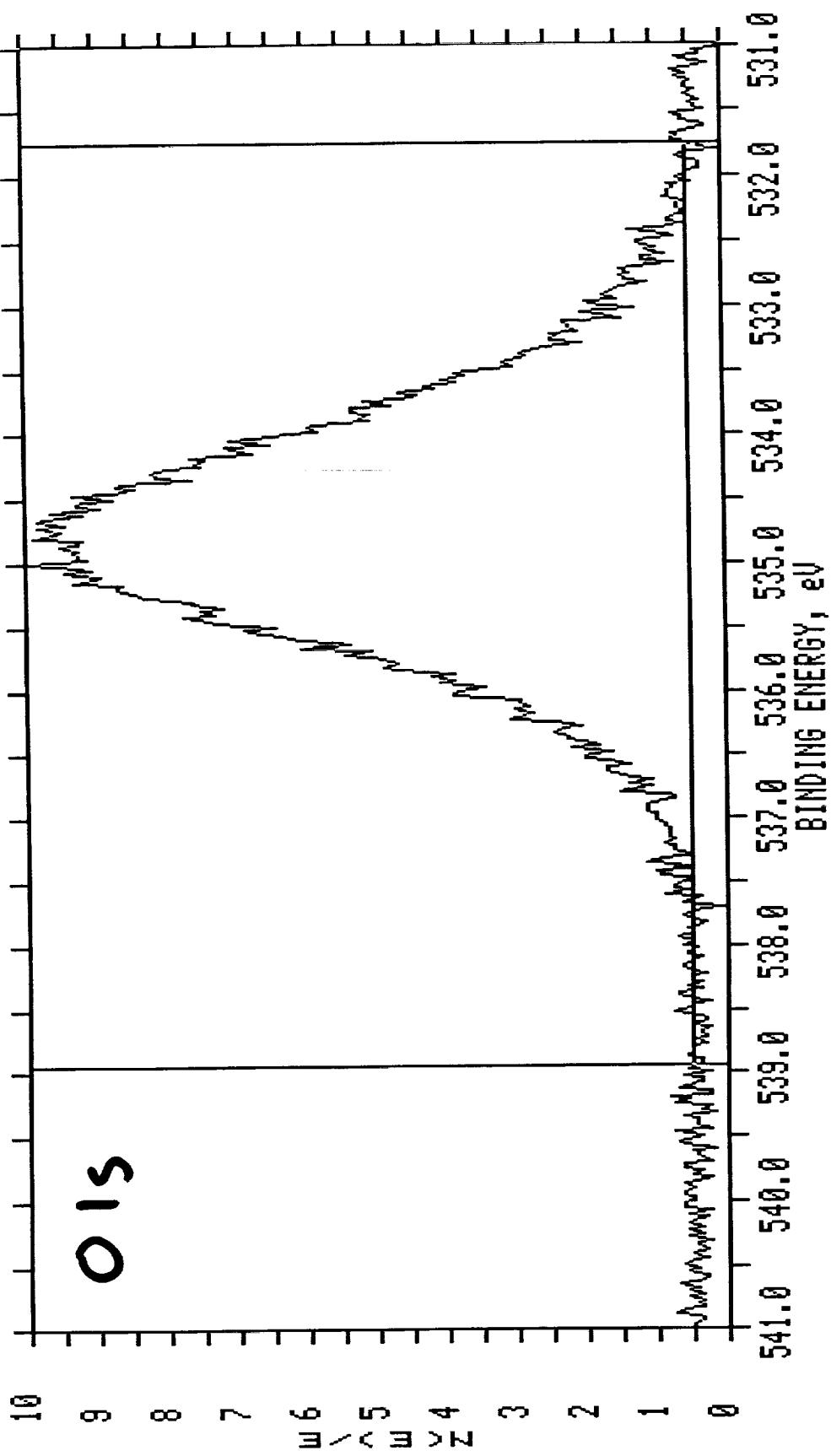
ESCA SURVEY 5/13/91 ANGLE= 20 deg ACG TIME=8.34 min  
FILE: H23A\_1 hair sample: backside  
SCALE FACTOR, OFFSET=16.899, 2.264 k c/s PASS ENERGY=89.450 eV Mg 300 W



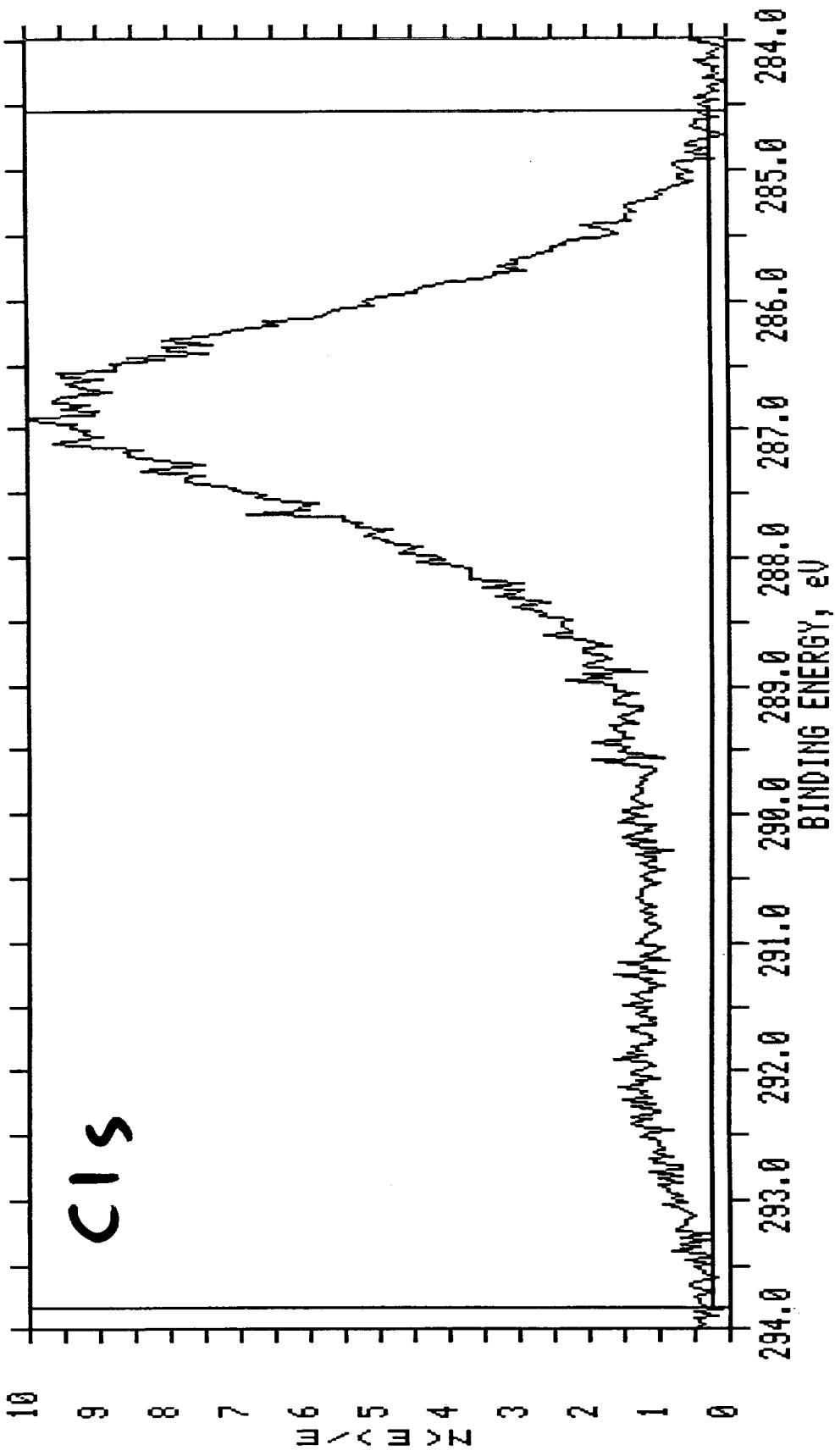
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FILE: H23A-2 halar sample: backside  
SCALE FACTOR, OFFSET=0.258, 3.604 K C/S PASS ENERGY=8.950 eV Mg 300 W



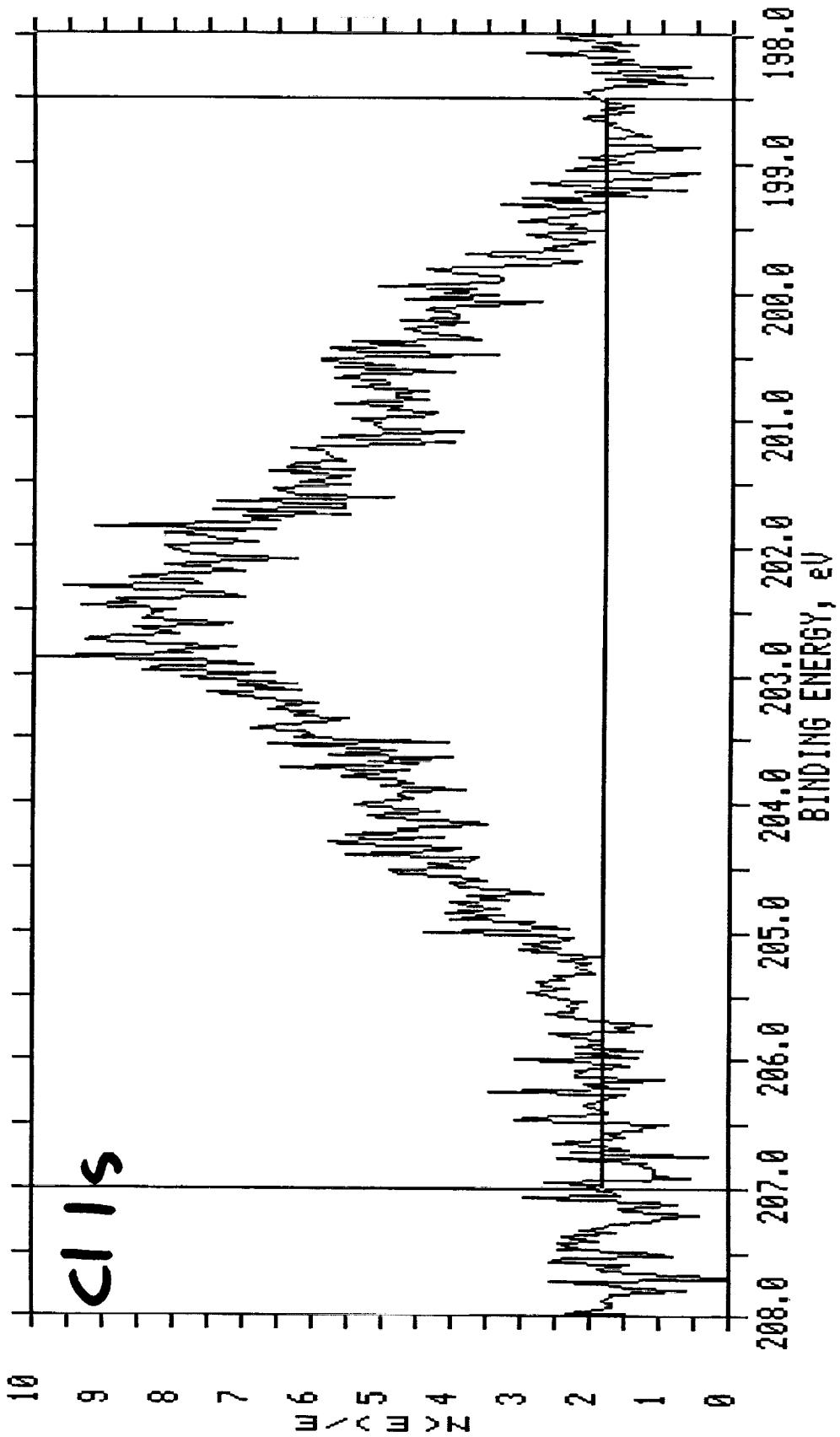
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SCALE FACTOR, OFFSET=0.508, 2.104 K c/s PASS ENERGY=8.950 eV Mg 300 W



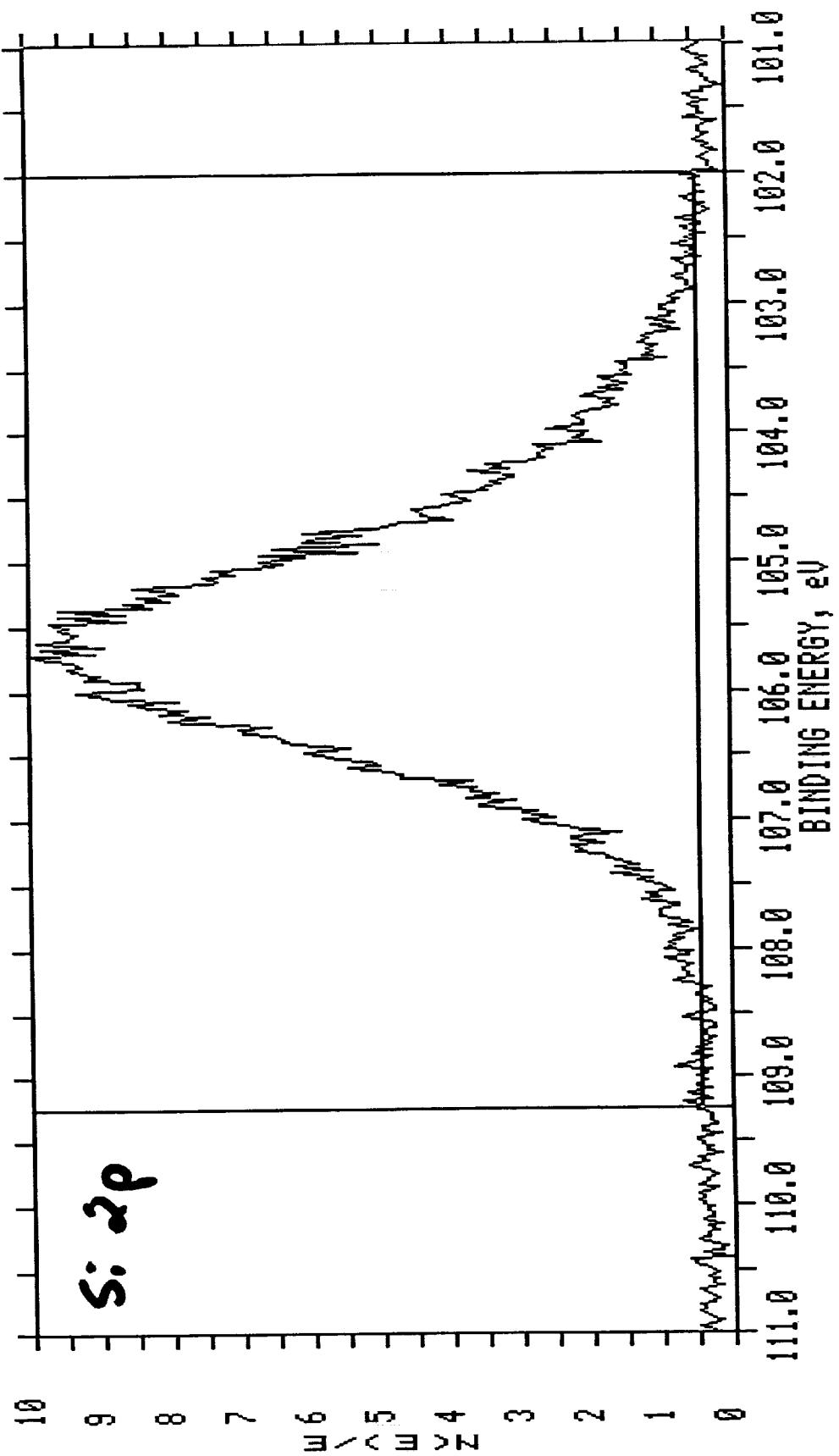
ESCA MULTIPLEX 5/13/91 EL=C1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23A\_2 hair sample: backside  
SCALE FACTOR, OFFSET=0.292, 1.620 k c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/13/91 EI=C11 REG 4 ANGLE= 20 deg ACG TIME=8.35 min  
FILE: H23A-2 hair sample: backside  
SCALE FACTOR, OFFSET=0.030, 1.406 K c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/13/91 EL=Si1 REG 5 ANGLE= 20 deg ACQ TIME=6.68 min  
FILE: H23A\_2 halar sample: backside  
SCALE FACTOR, OFFSET=0.093, 1.284 K C/s PASS ENERGY=8.950 eV Mg 300 W





Ion Gun:OFF X-ray:OFF Mg

Technique:ESCA

0.6mPa

5/13/91 18:33

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5 6 7

Atomic Concentration Table

File: H23B\_3

Comment: halar sample: front side

Input Lens: Large Area Omni Focus

Element | Concentration(%) | Sens. Factor

F1s	20.38		1.000
O1s	15.23		0.711
C1s	58.26		0.296
Cl2p	2.88		0.891
Si2p	2.06		0.339
W4f	0.11		3.523
Mg2p	1.09		0.153

AC  
Table

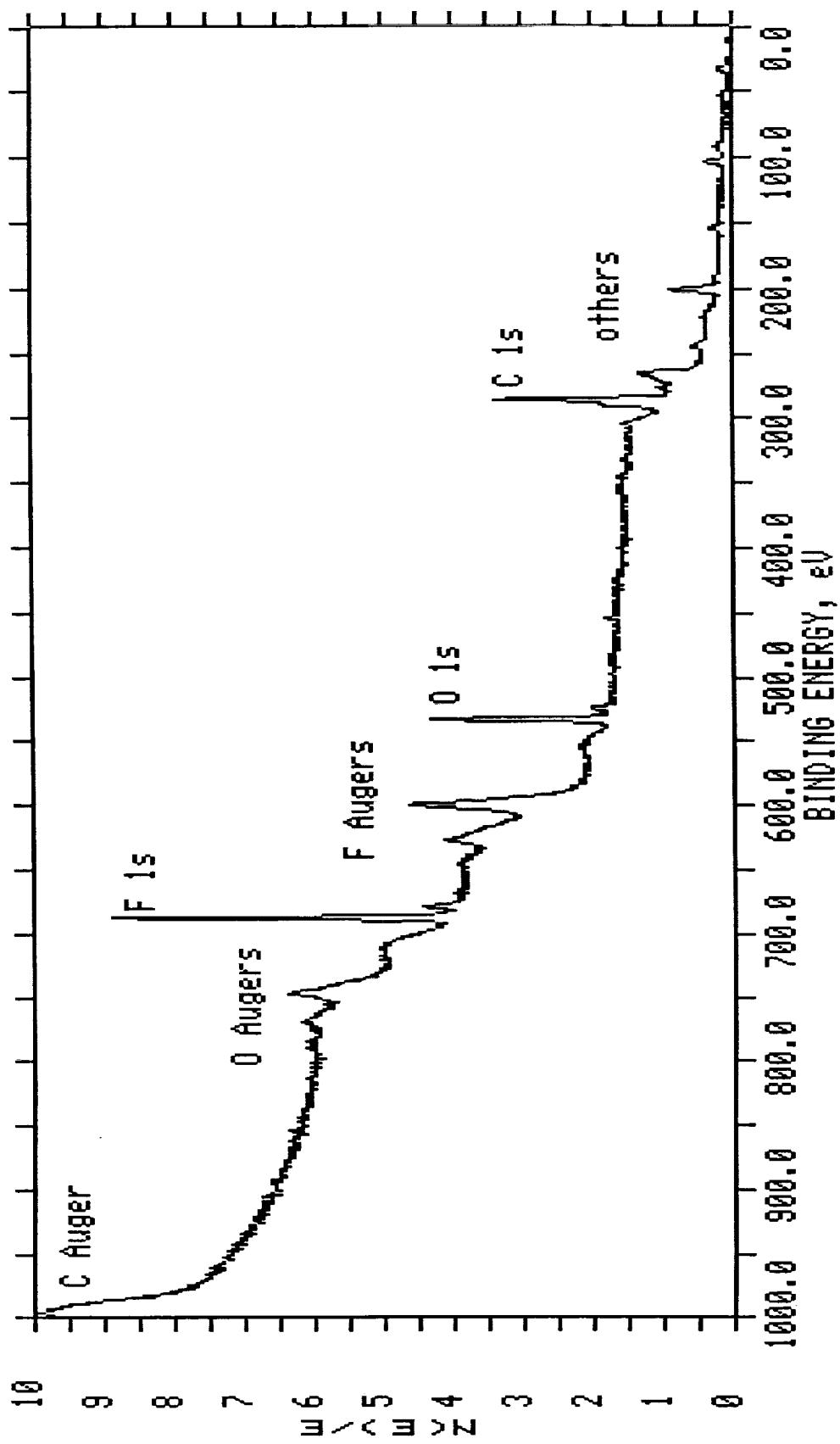
AC to AC  
Summary

Omit

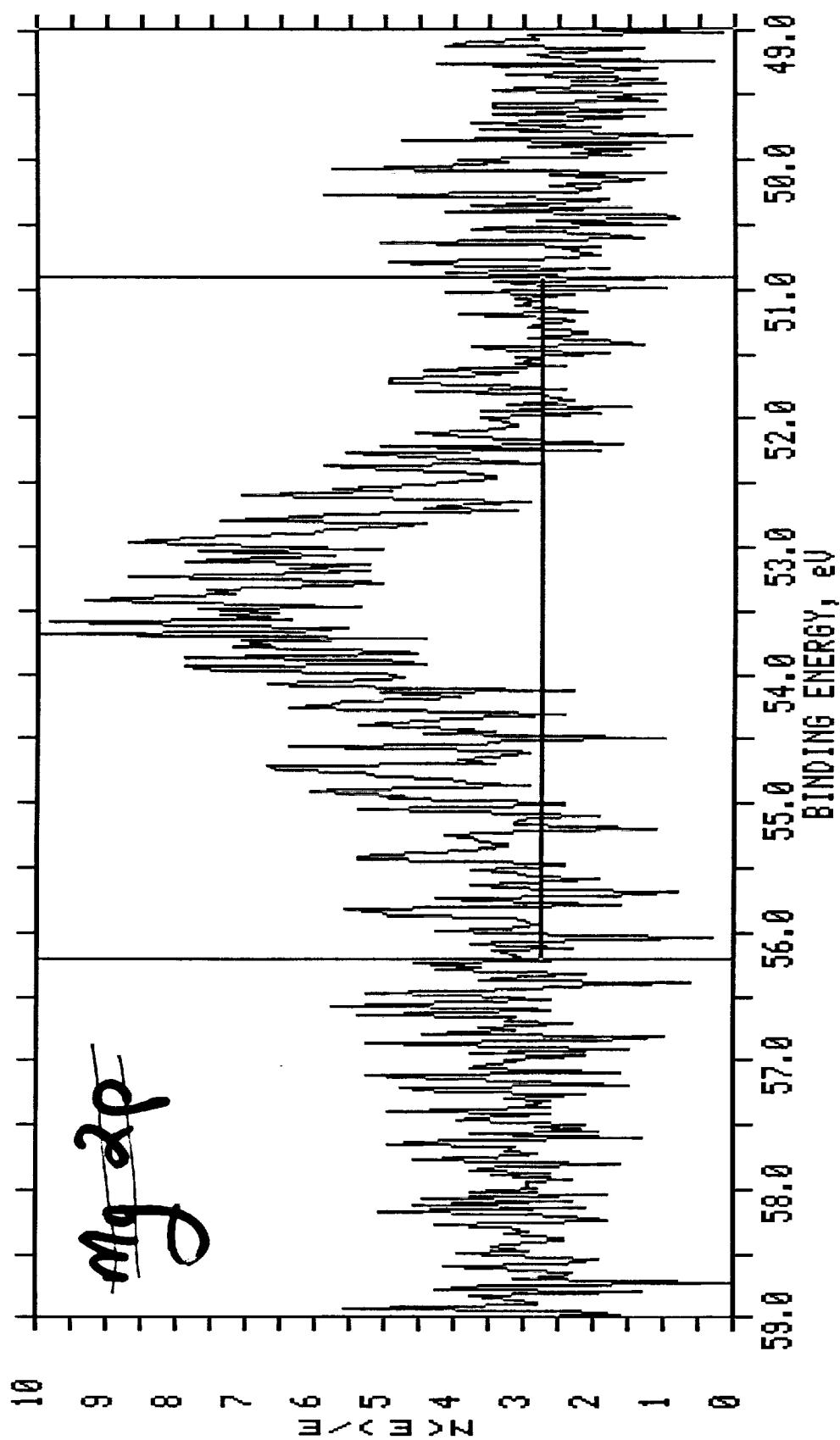
Exit

All

ESCA SURVEY 5/13/91 ANGLE= 20 deg ACQ TIME=8.34 min  
FILE: H23B\_1 halar sample: front side  
SCALE FACTOR, OFFSET=15.602, 2.072 K c/s PASS ENERGY=89.450 eV Mg 300 W



ESCA MULTIPLEX 5/13/91 EL=Mg2 REG 6 ANGLE= 20 deg ACO TIME=8.35 min  
FILE: S13GA\_3 white disk sample: yellowed area of sample  
SCALE FACTOR, OFFSET=0.010, 1.280 K C/s PASS ENERGY=8.950 eV Mg 300 W



Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/13/91 16:13

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5

Atomic Concentration Table

File: S13GB\_3

Comment: white disk sample: white edge area of sample

Input Lens: Large Area Omni Focus

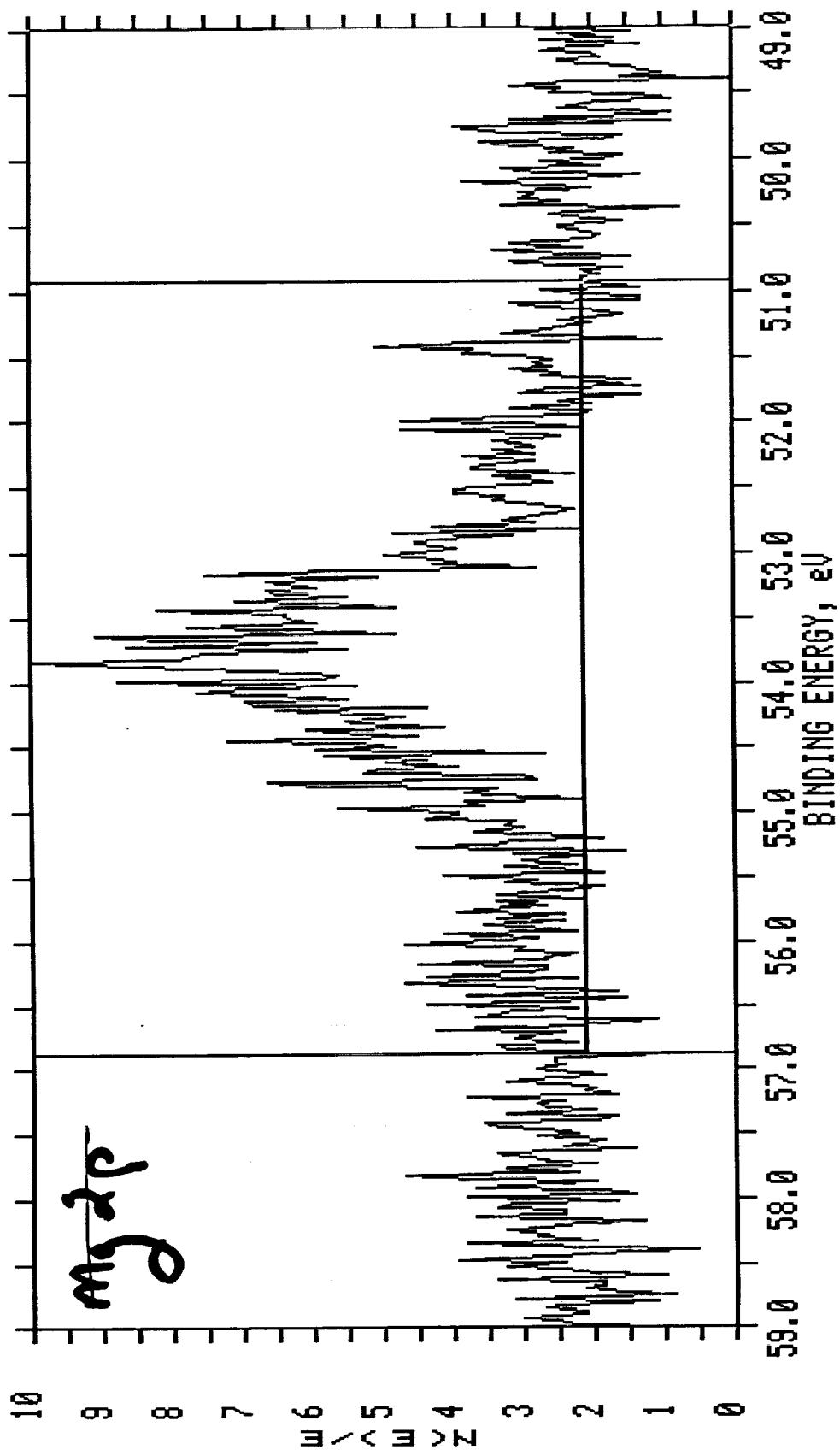
Element	Concentration(%)	Sens. Factor
O1s	30.78	0.711
C1s	47.44	0.296
Si2p	19.25	0.339
Cl2p	0.59	0.891
Mg2p	1.93	0.153

AC  
Table

Omit  
All

Exit

ESCA MULTIPLEX 5/13/91 EL=Mg2 REG 5 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: S13GB\_3 White disk sample: white edge area of sample  
SCALE FACTOR, OFFSET=0.011, 1.266 K c/s PASS ENERGY=8.950 eV Mg 300 W



Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/13/91 16:15

Atomic Concentration (%) Summary Table

Screen 1 of 1  
Page 1 of 1

Angle/1 C1s Mo3d ~~Mg2p~~

1 File Name Cycle| O1s Si2p Cl2p

S13GA\_3 | 31.21 45.77 20.01 0.64 0.80 1.57

S13GB\_3 | 30.78 47.44 19.25 - 0.59 1.93

yellow area (center)

white area (edge)

S13G Sample

Print Delete  
Summary Entry

Clear AC Exit  
Summary

Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/13/91 14:58

Atomic Concentration

	1	Peak Measurement	Use	Height	<u>Area</u>	Element Name
2 Included Regions	1	2	3	4	5	6

Atomic Concentration Table

File: S13GA\_3

Comment: white disk sample: yellowed area of sample

Input Lens: Large Area Omni Focus

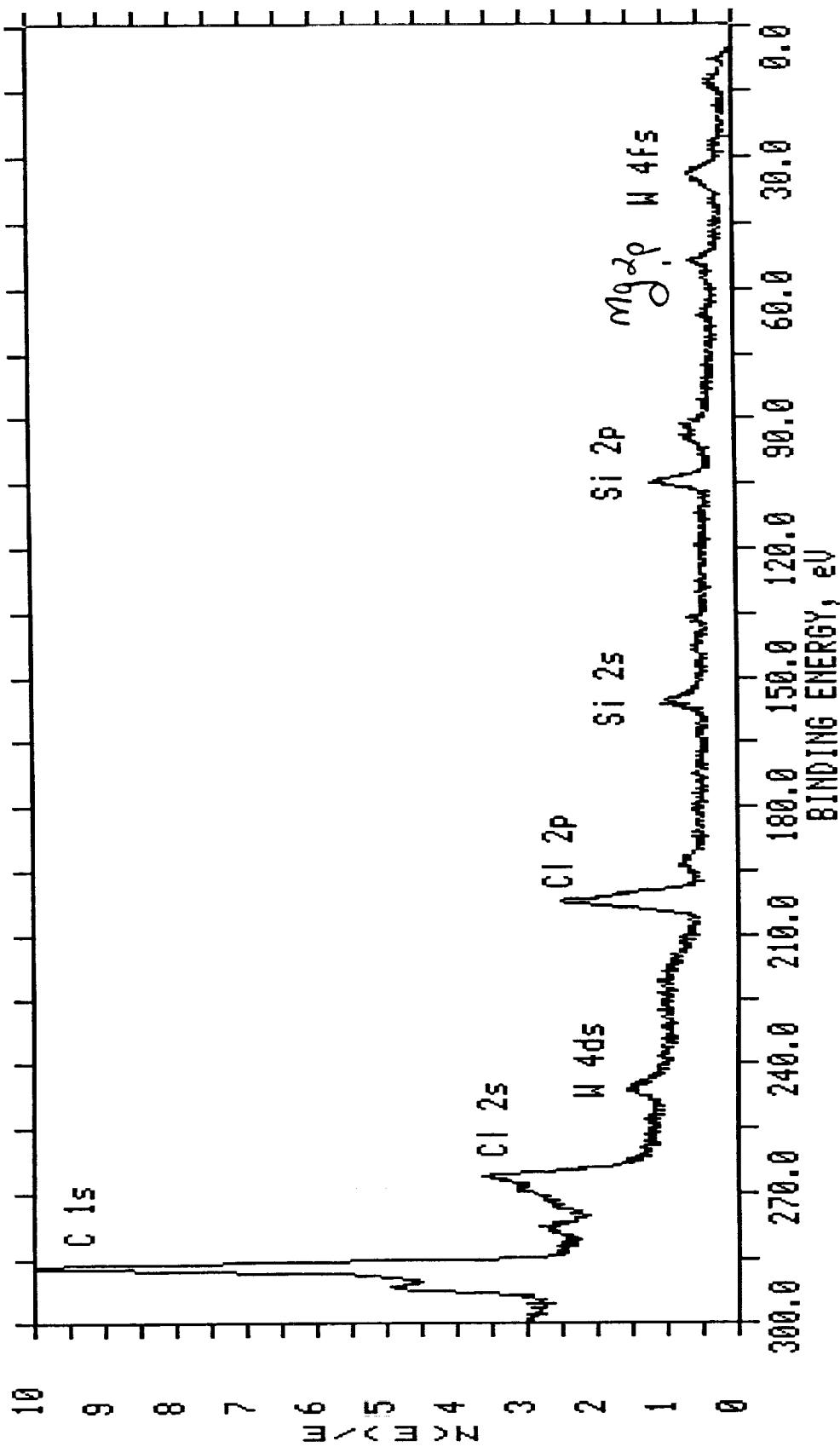
Element	Concentration(%)	Sens. Factor
O1s	31.21	0.711
C1s	45.77	0.296
Si2p	20.01	0.339
Mo3d	0.64	3.321
Cl2p	0.80	0.891
Mg2p	1.57	0.153

AC  
Table

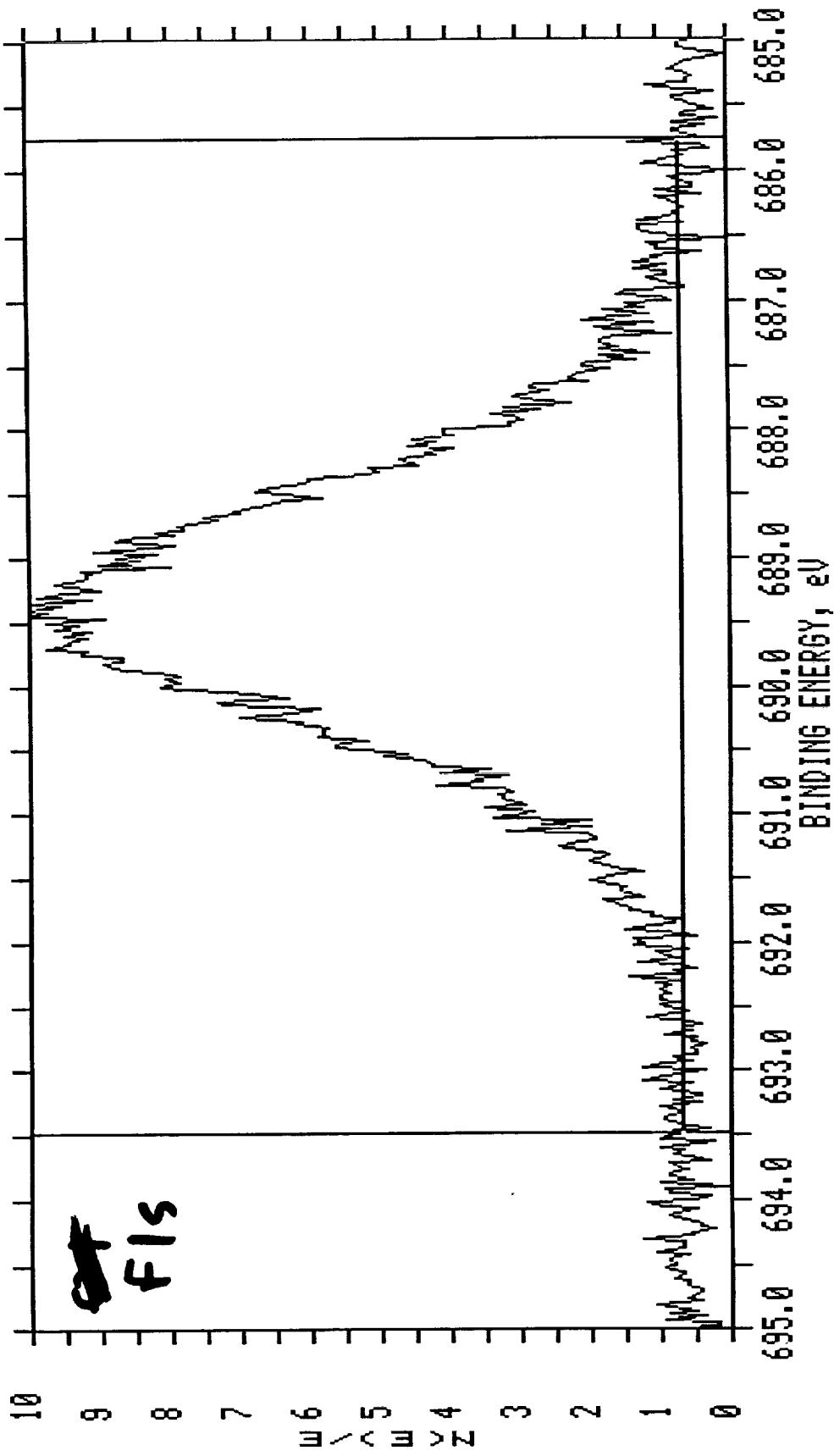
Omit  
All

Exit

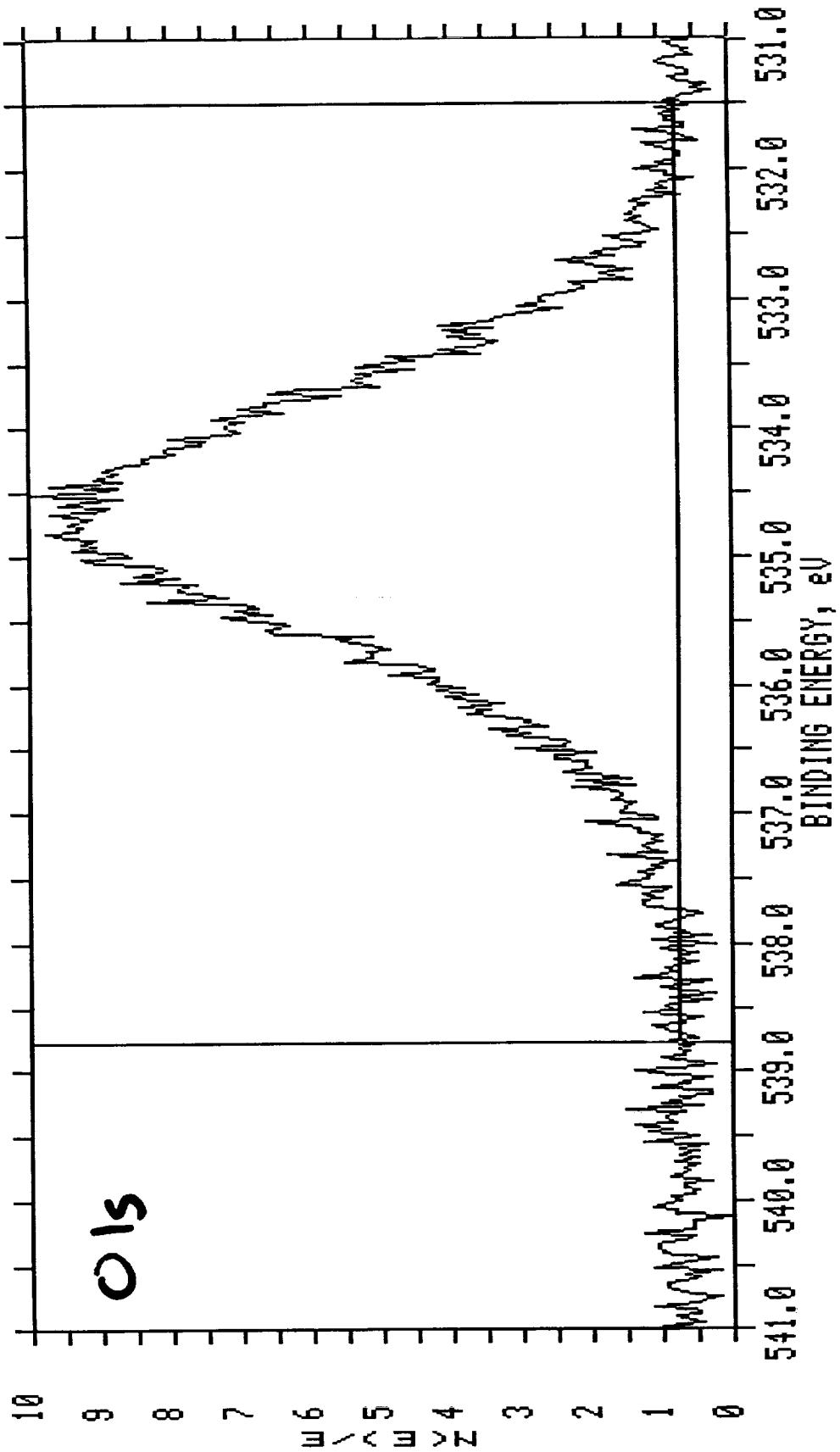
ESCA SURVEY 5/13/91 ANGLE= 20 deg ACG TIME=8.76 min  
FILE: H23B-2 halar sample: front side  
SCALE FACTOR, OFFSET=1.687, 1.309 K C/s PASS ENERGY=35.750 eV Mg 300 W



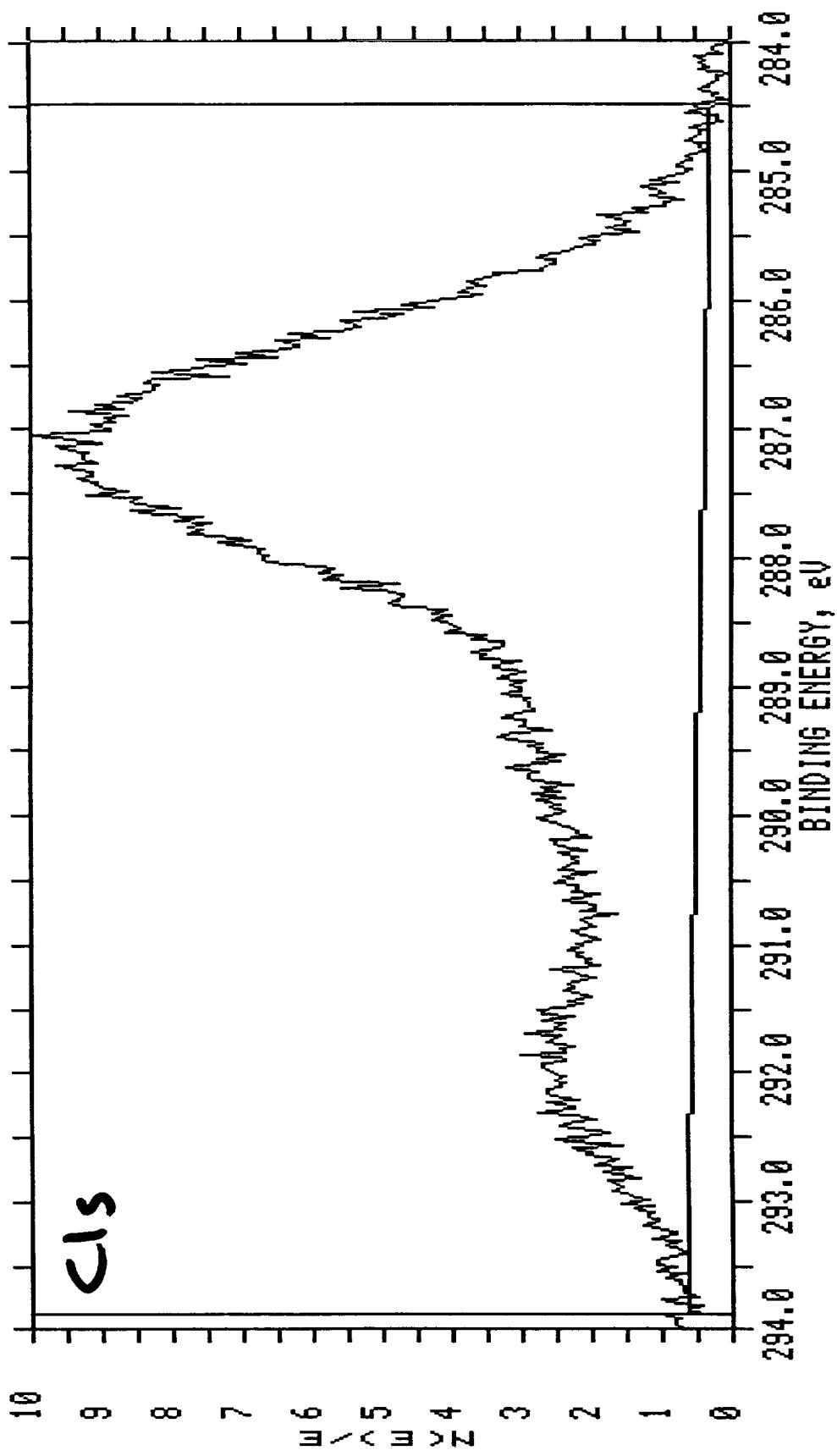
ESCA MULTIPLEX 5/13/91 EL=F1 REG 1 ANGLE= 20 deg ACQ TIME=1.67 min  
FILE: H23B\_3 halor sample: front side  
SCALE FACTOR, OFFSET=0.415, 3.544 K c/s PASS ENERGY=8.950 eV Mg 300 W



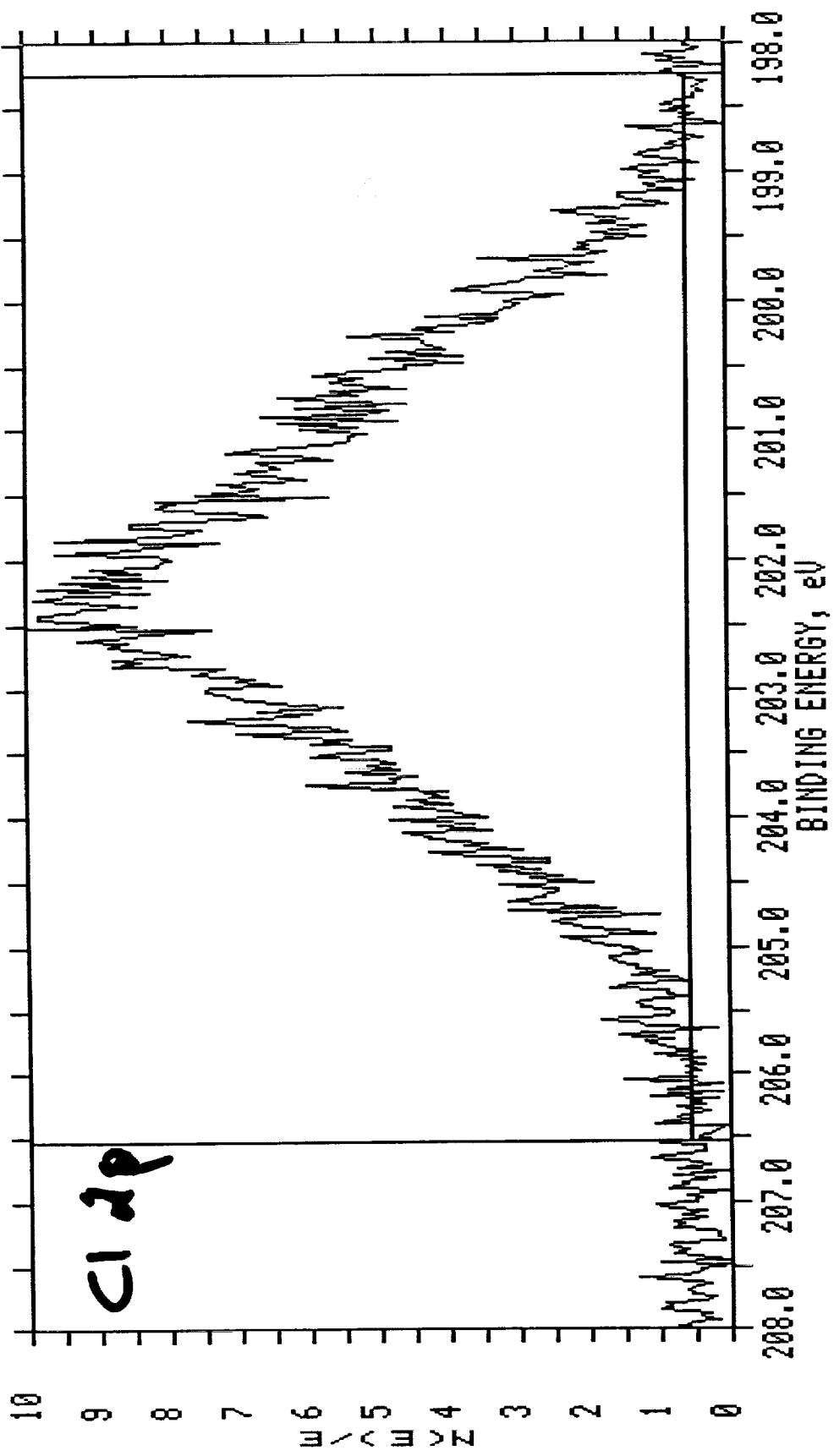
ESCA MULTIPLEX 5/13/91 EL=01 REG 2 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23B\_3 halor sample: front side  
SCALE FACTOR, OFFSET=0.217, 2.156 K c/s PASS ENERGY=8.950 eV Mg 300 W



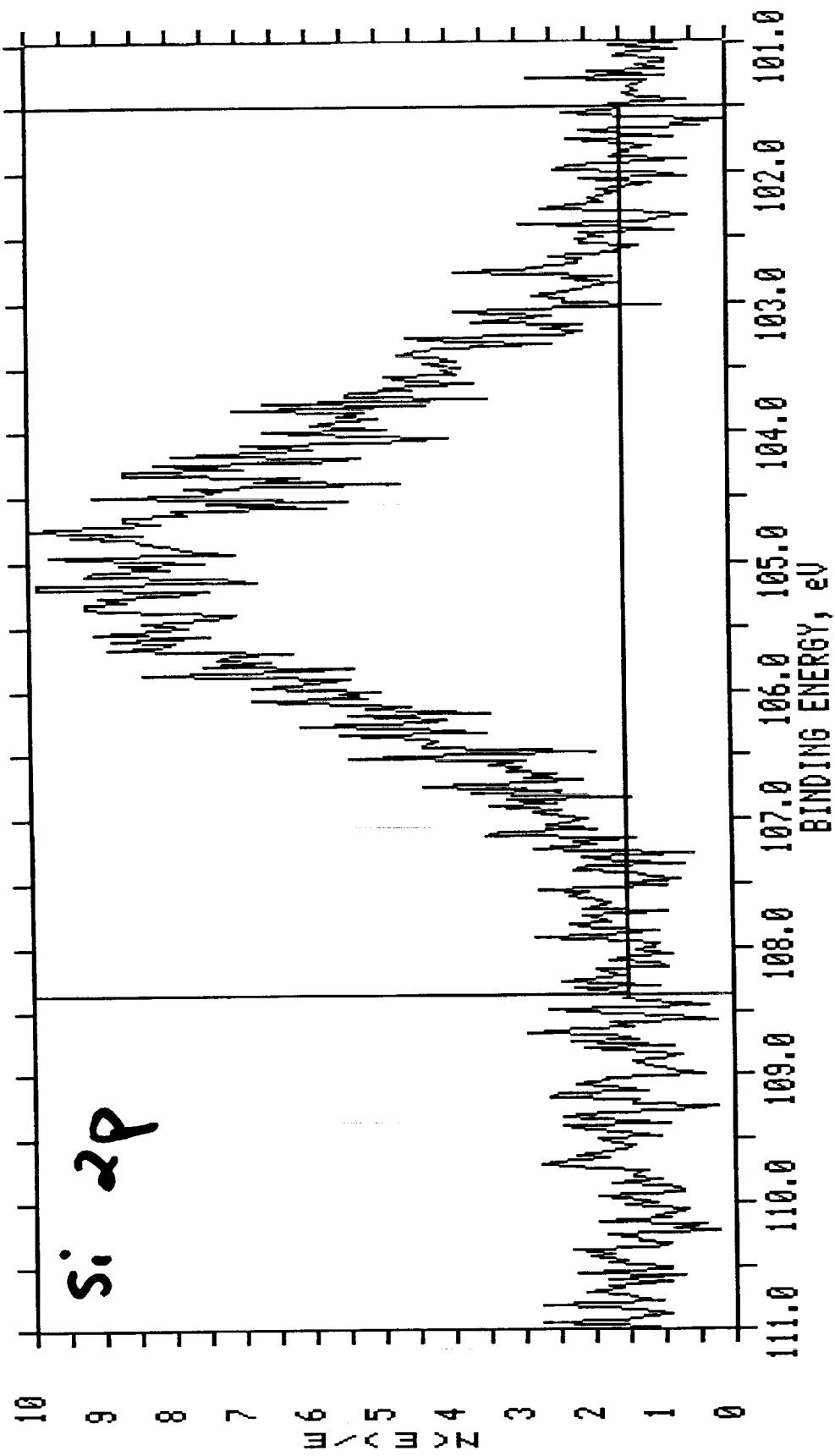
ESCA MULTIPLEX 5/13/91 EL=C1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23B\_3 halar sample: front side  
SCALE FACTOR, OFFSET=0.264, 1.660 K C/s PASS ENERGY=8.950 eV Mg 300 W



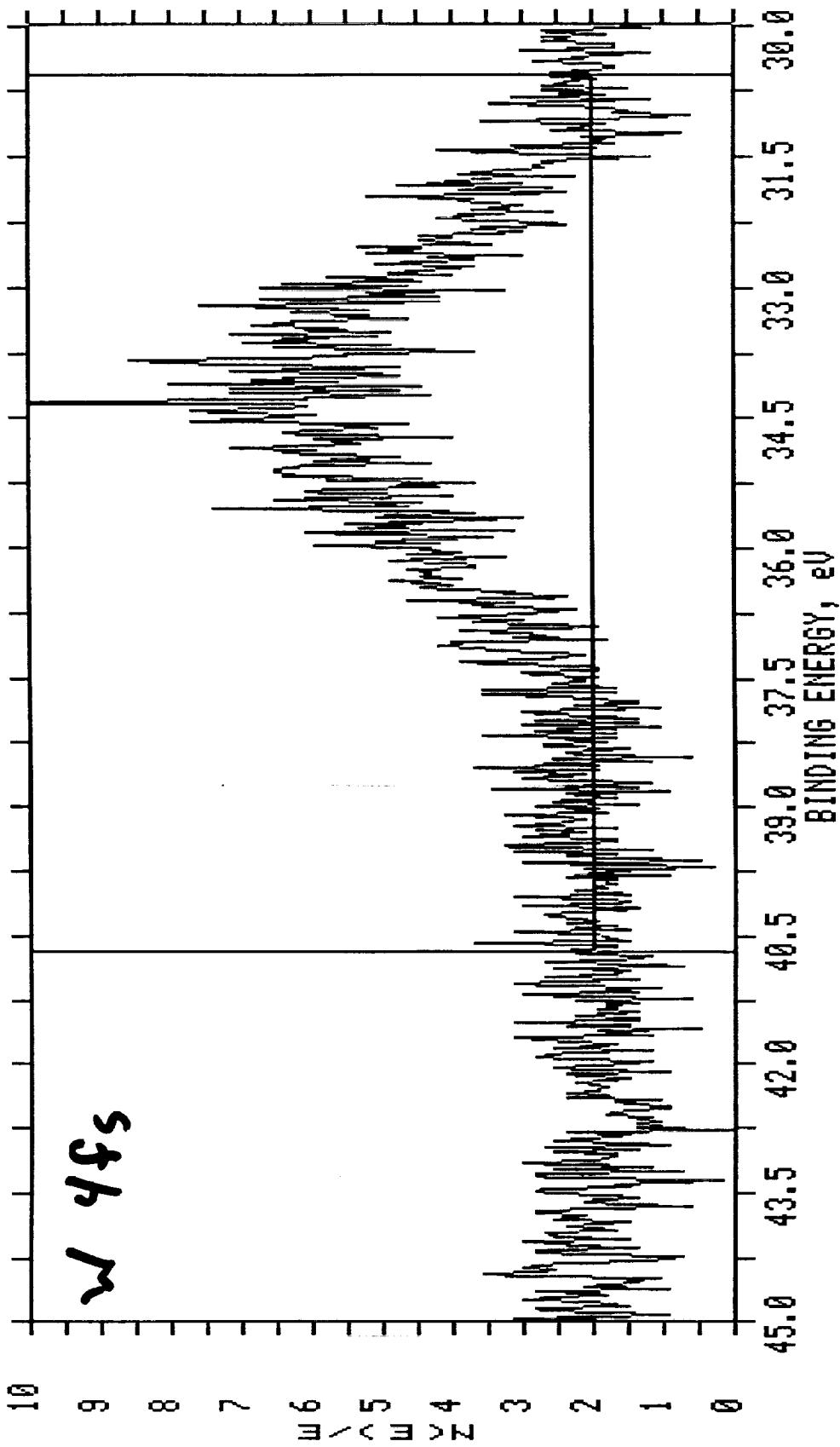
ESCA MULTIPLEX 5/13/91 EL=C11 REG 4 ANGLE= 20 deg ACD TIME=6.68 min  
FILE: H23B\_3 halar sample: front side  
SCALE FACTOR, OFFSET=0.040, 1.310 K c/s PASS ENERGY=8.950 eV Mg 300 W



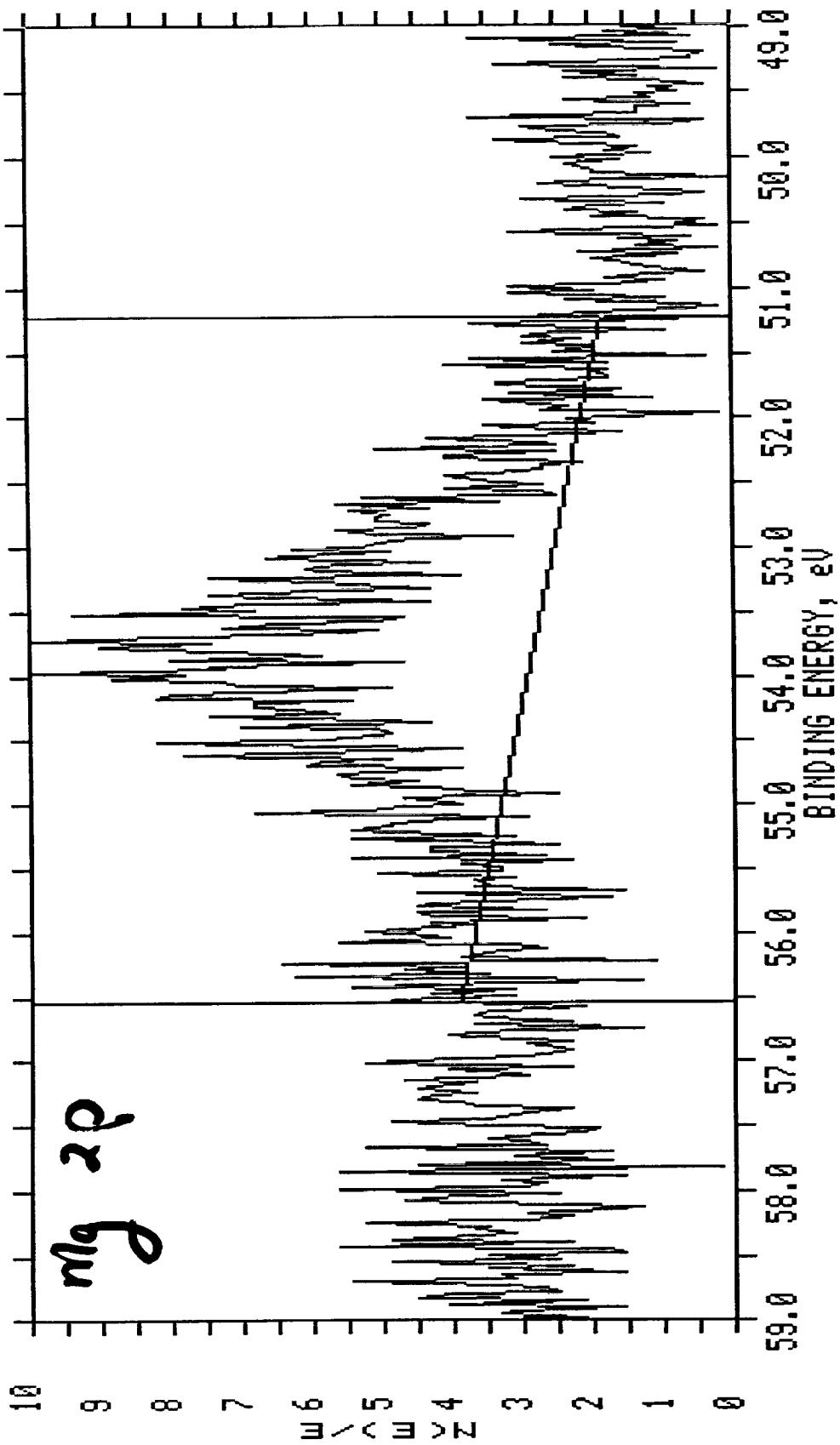
ESCA MULTIPLEX 5/13/91 EL=Si1 REG 5 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: H23B\_3 halic sample: front side  
SCALE FACTOR, OFFSET=0.016, 1.278 K C/s PASS ENERGY=8.950 eV Mg 300 W

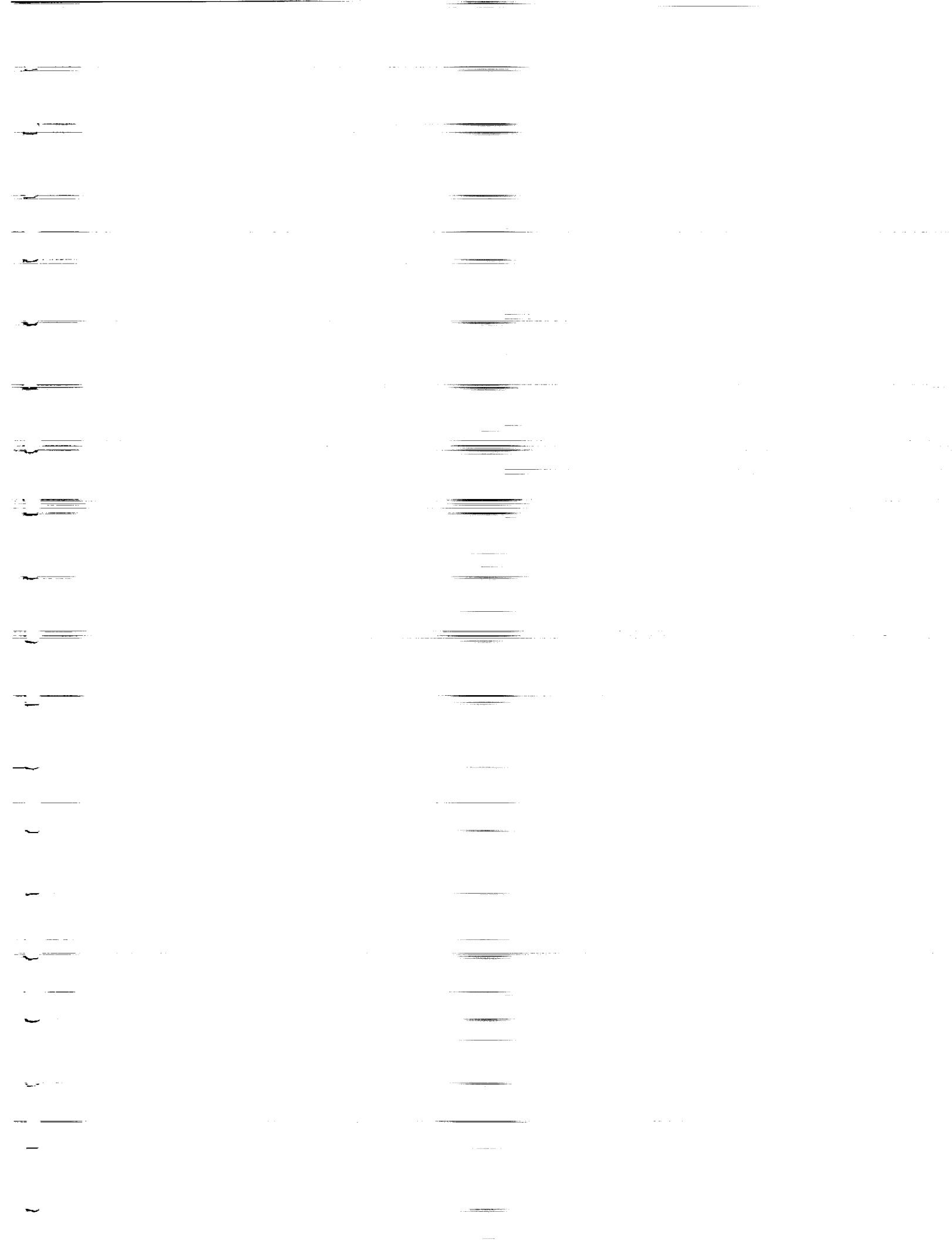


ESCA MULTIPLEX 5/13/91 EL=W1 REG 6 ANGLE= 20 deg ACQ TIME=12.52 min  
FILE: H23B\_3 halor sample: front side  
SCALE FACTOR, OFFSET=0.011, 1.254 K c/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/13/91 EL=Mg2 REG 7 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: H23B\_3 halar sample: front side  
SCALE FACTOR, OFFSET=0.008, 1.264 K c/s PASS ENERGY=8.950 eV Mg 300 W





- Ion Gun:OFF X-ray: ON Mg

Acquiring

Technique:ESCA

0.6mPa

5/14/91 11:37

Atomic Concentration

1 Peak Measurement Use Height Area Element Name

2 Included Regions 1 2 3 4 5 6 7

Atomic Concentration Table

File: H23C\_3

Comment: halar sample: edge piece

Input Lens: Large Area Omni Focus

Element|Concentration(%)|Sens. Factor

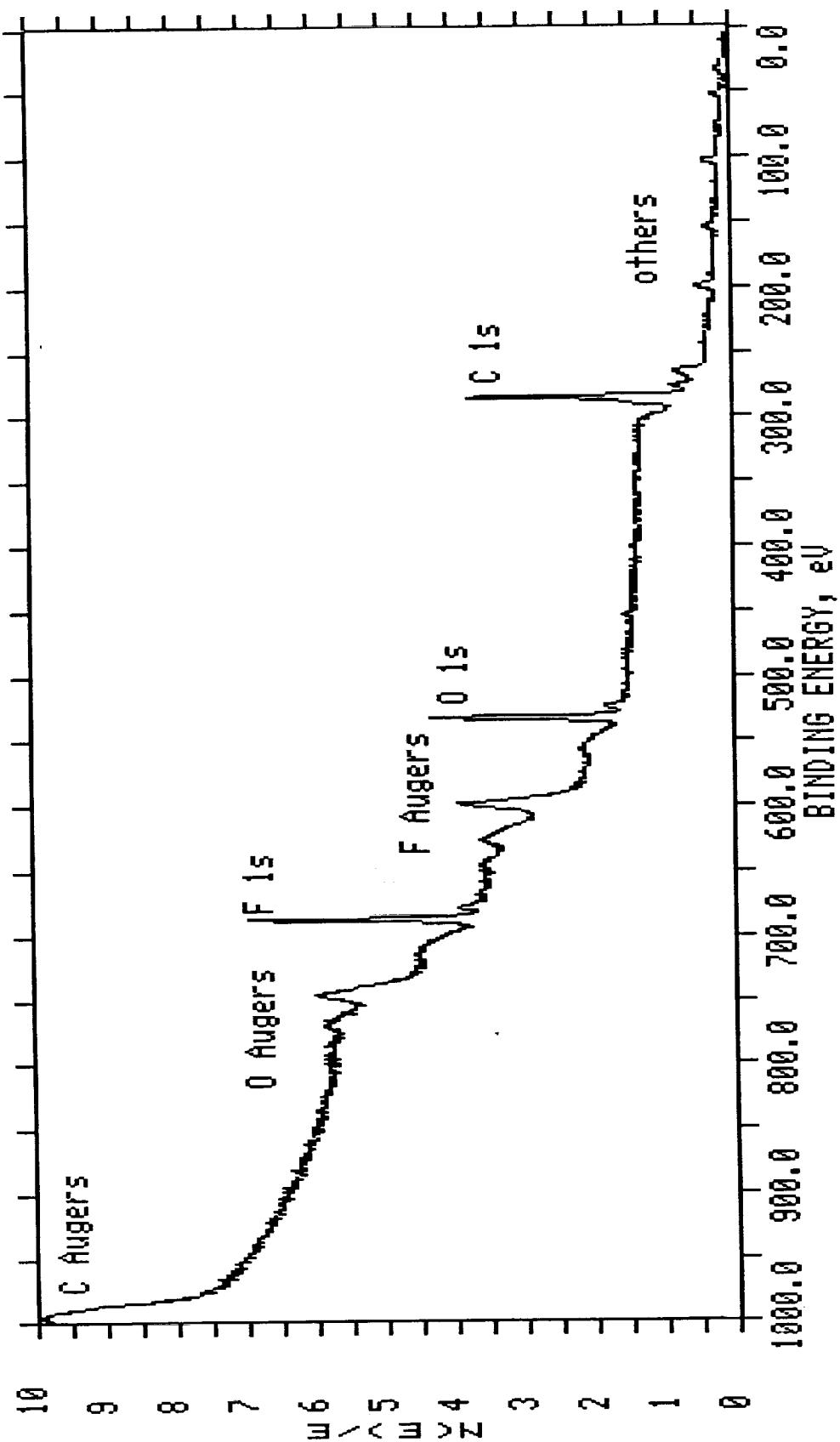
F1s	15.31		1.000
O1s	18.81		0.711
C1s	60.43		0.296
Cl2p	1.36		0.891
Si2p	2.48		0.339
W4f	0.08		3.523
Mg2p	1.53		0.153

AC  
Table

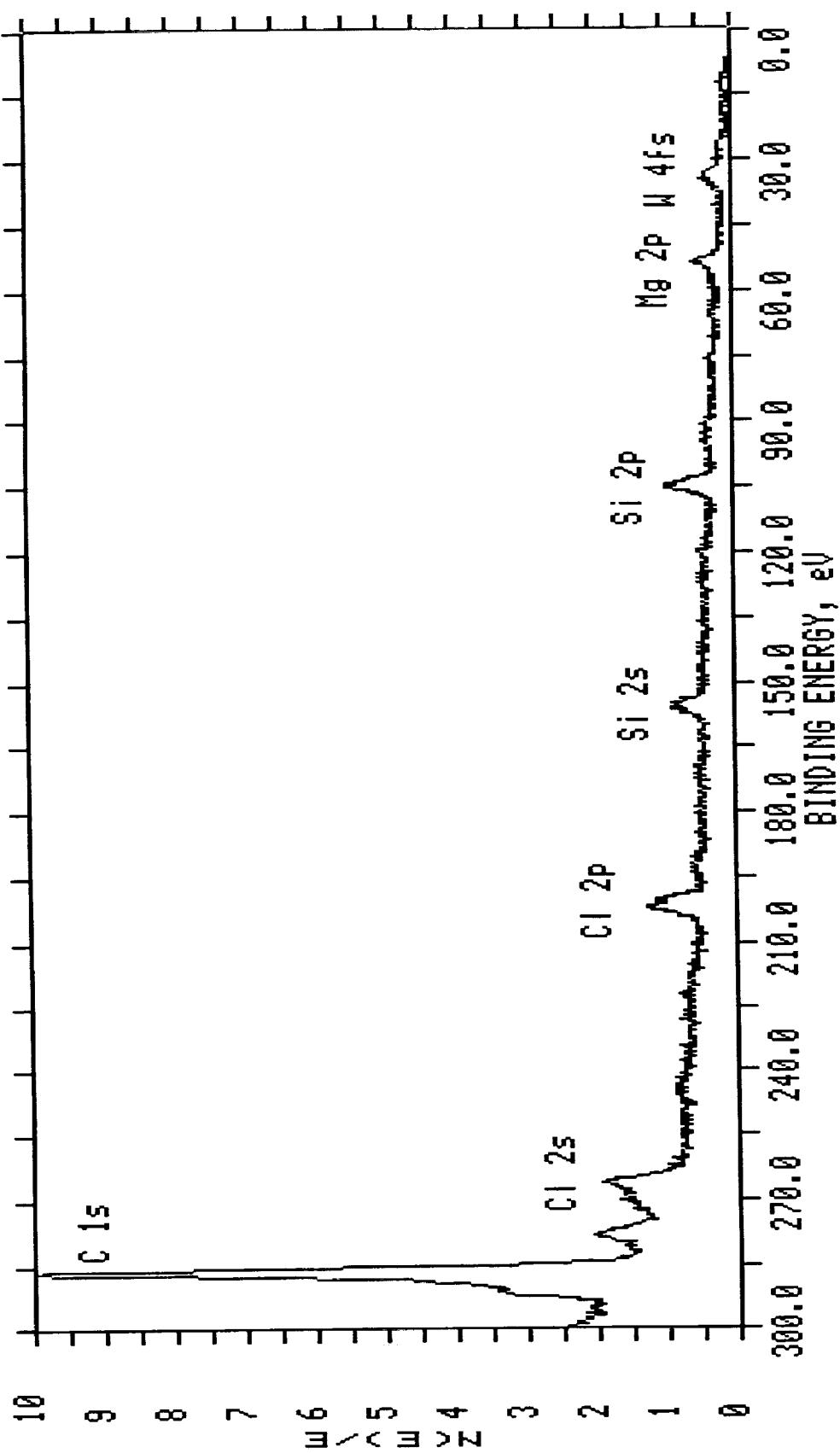
Omit  
All

Exit

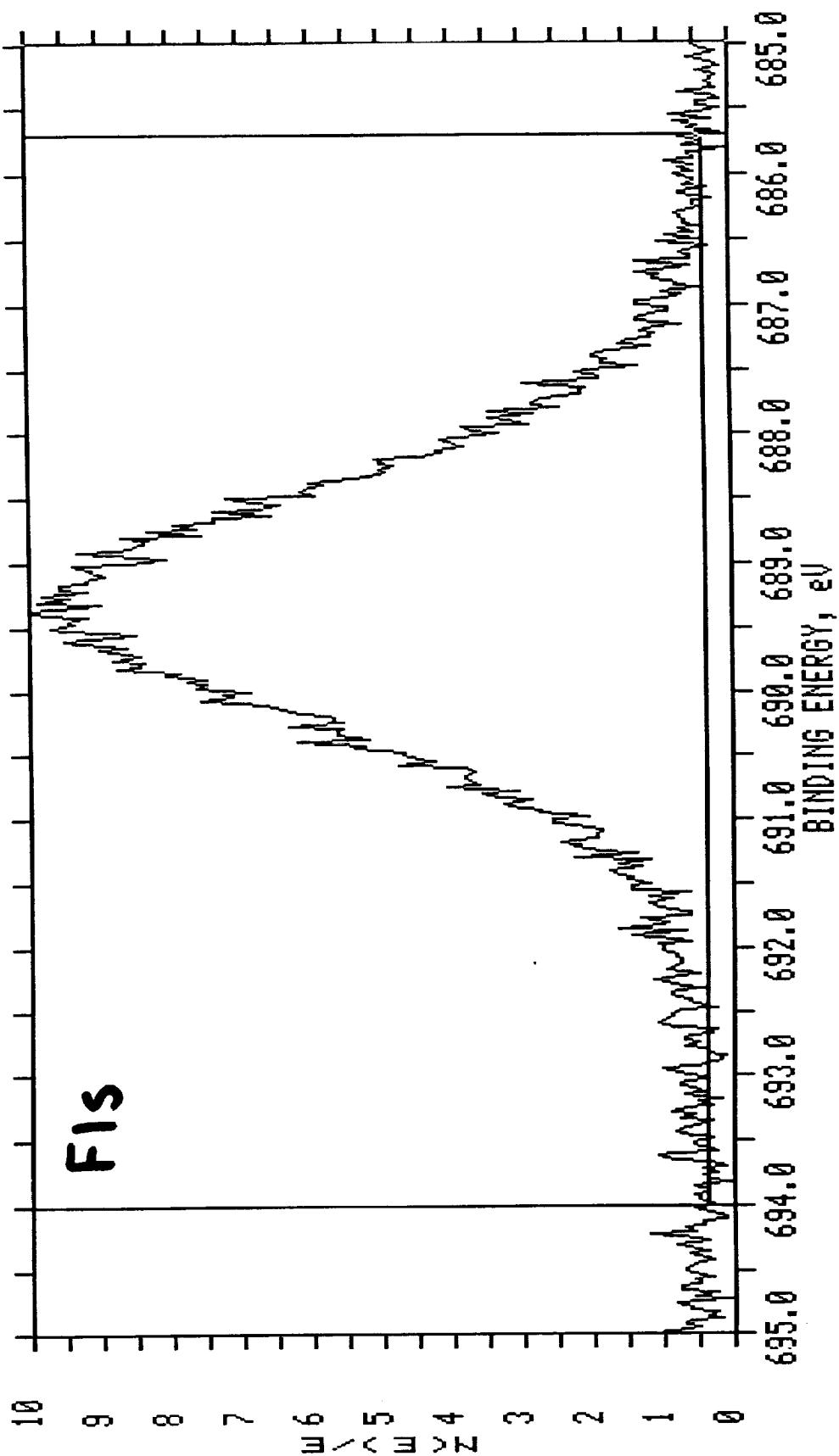
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACQ TIME=8.34 min  
FILE: H23C\_1 hair sample: edge Piece  
SCALE FACTOR, OFFSET=15.958, 1.976 K c/s PASS ENERGY=89.450 eV Mg 300 W



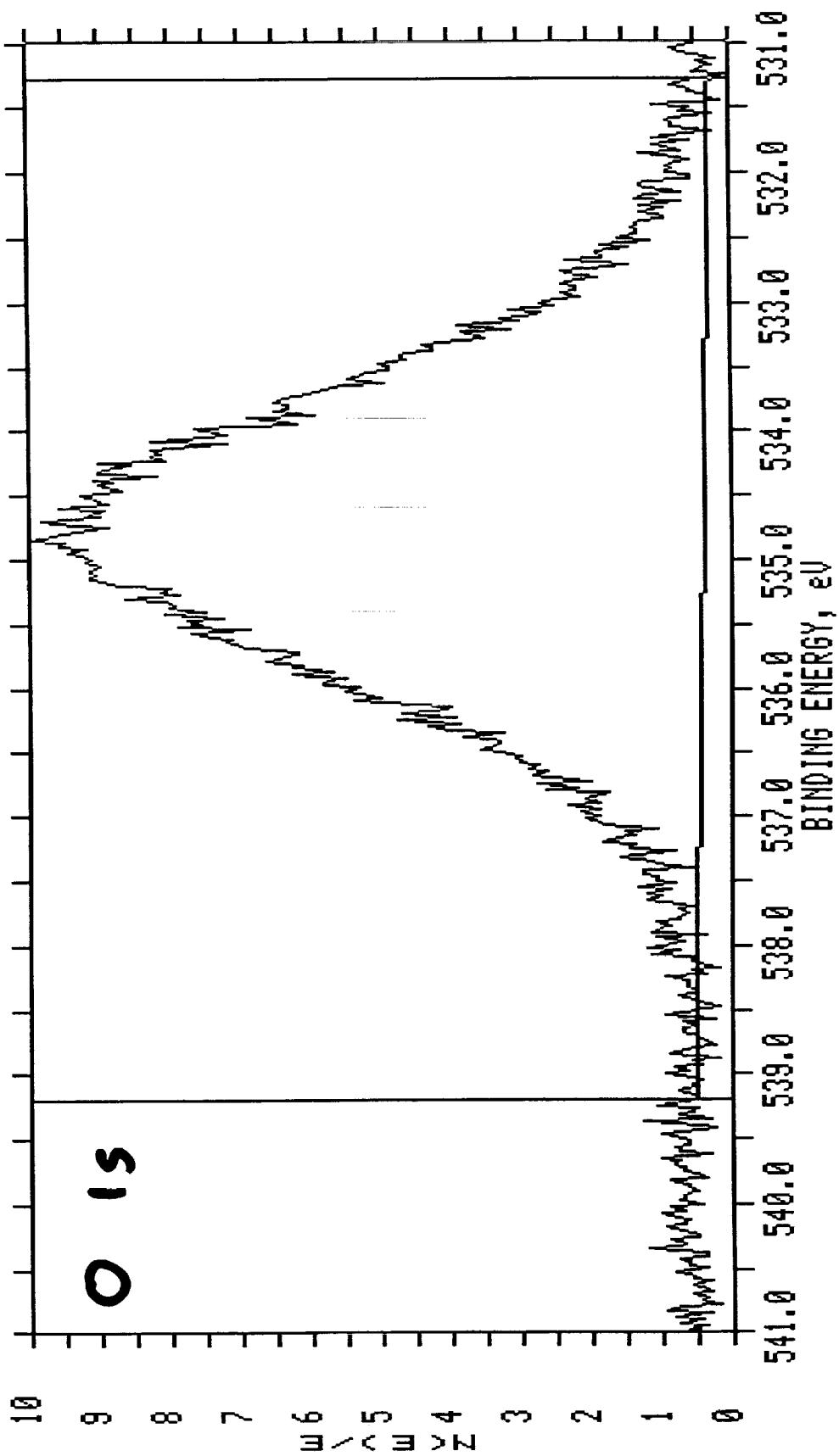
ESCA SURVEY 5/14/91 ANGLE= 20 deg ACQ TIME=8.76 min  
FILE: H23C\_2 halar sample: edge piece  
SCALE FACTOR, OFFSET=1.911, 1.314 K C/s PASS ENERGY=35.750 eV Mg 300 W



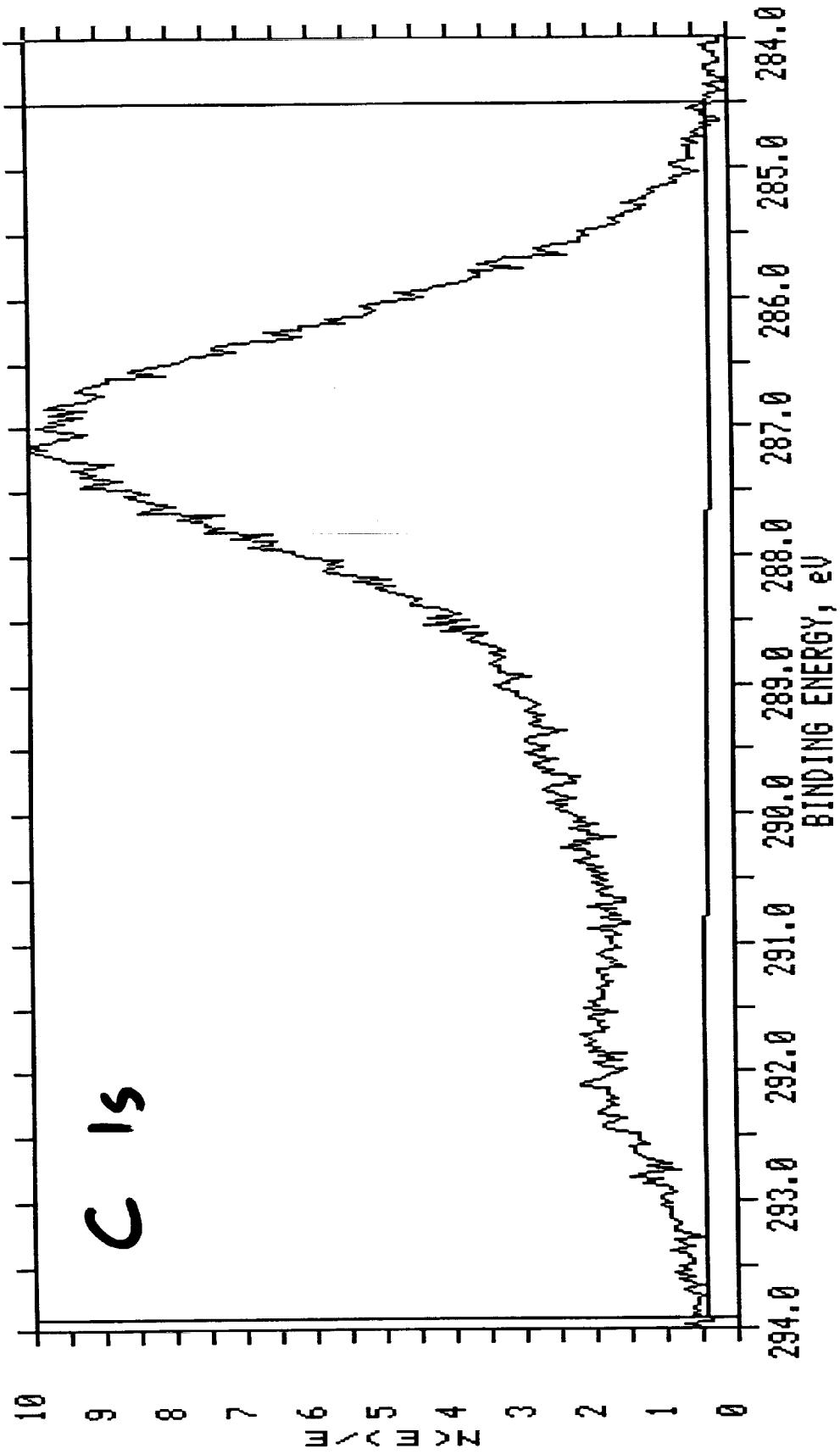
ESCA MULTIPLEX 5/14/91 EL=F1 REG 1 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23C\_3 halar sample: edge piece  
SCALE FACTOR, OFFSET=0.332, 3.576 K C/S PASS ENERGY=8.950 eV Mg 300 N



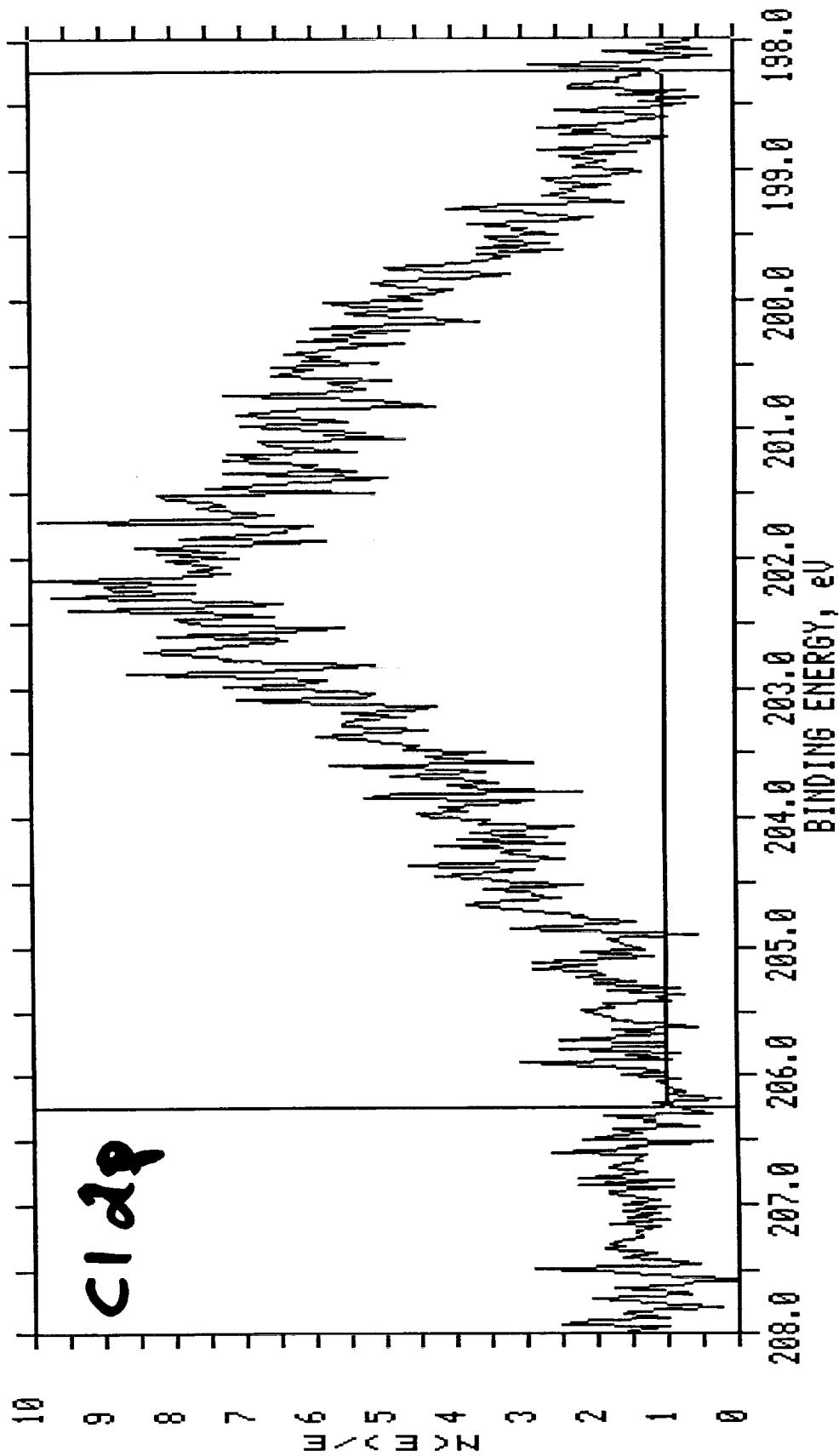
ESCA MULTIPLEX 5/14/91 EL=01 REG 2 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23C\_3 halar sample: edge Piece  
SCALE FACTOR, OFFSET=0.253, 2.092 K c/s PASS ENERGY=8.950 eV Mg 300 W



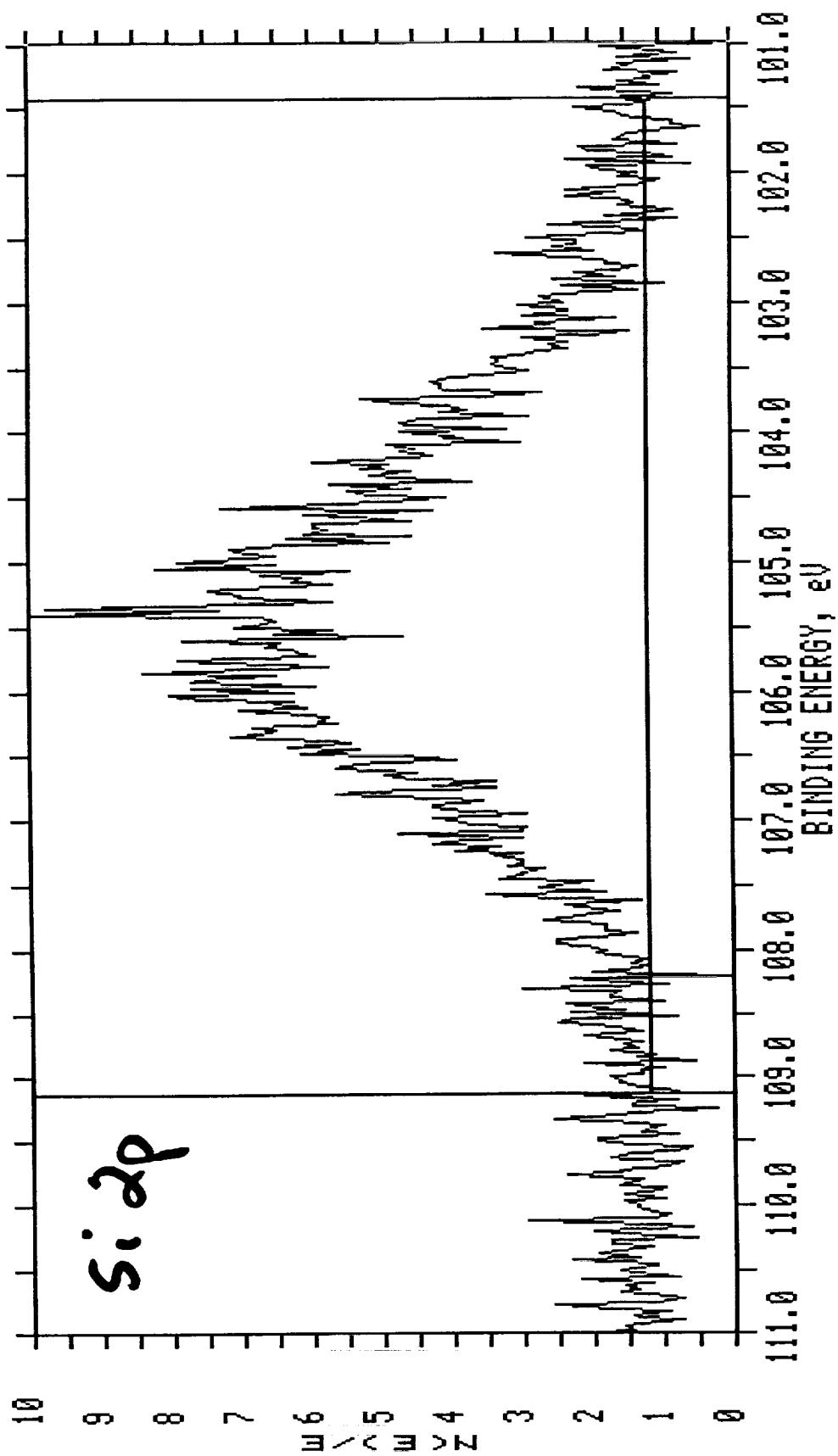
ESCA MULTIPLEX 5/14/91 EL=c1 REG 3 ANGLE= 20 deg ACQ TIME=3.34 min  
FILE: H23C\_3 halar sample: edge piece  
SCALE FACTOR, OFFSET=0.309, 1.544 K C/s PASS ENERGY=8.950 eV Mg 300 W



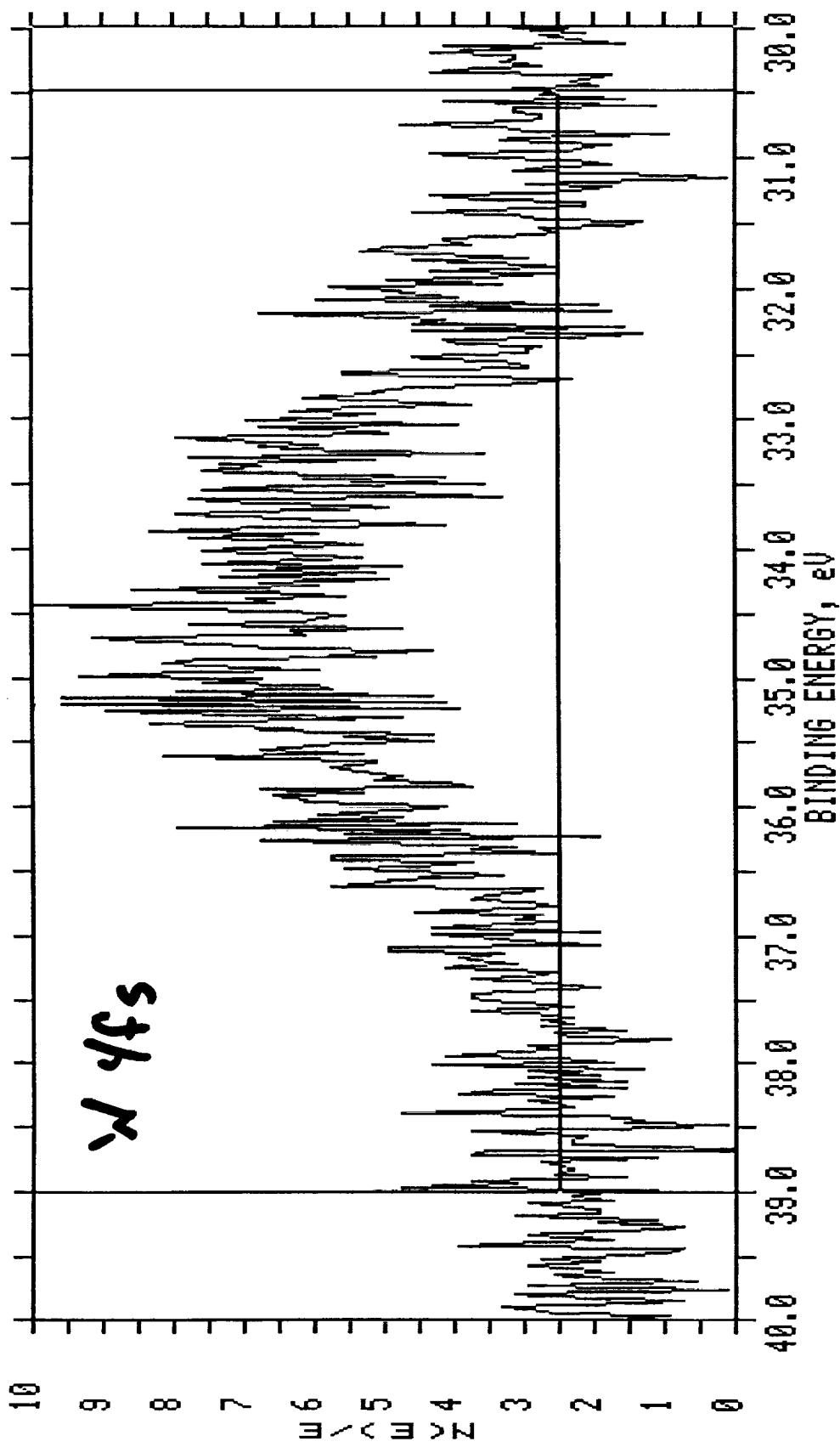
ESCA MULTIPLEX 5/14/91 EL=C11 REG 4 ANGLE= 20 deg ACQ TIME=6.68 min  
FILE: H23C\_3 halar sample: edge Piece  
SCALE FACTOR, OFFSET=0.023, 1.304 K C/S PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Si1 REG 5 ANGLE= 20 deg ACQ TIME=6.68 min  
FILE: H23C\_3 halic sample: edge piece  
SCALE FACTOR, OFFSET=0.022, 1.272 K C/s PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=W1 REG 6 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: H23C-3 halor sample: edge piece  
SCALE FACTOR, OFFSET=0.008, 1.258 K c/s. PASS ENERGY=8.950 eV Mg 300 W



ESCA MULTIPLEX 5/14/91 EL=Mg2 REG 7 ANGLE= 20 deg ACQ TIME=8.35 min  
FILE: H23C-3 halar sample: edge piece  
SCALE FACTOR, OFFSET=0.011, 1.259 K C/s PASS ENERGY=8.950 eV Mg 300 W

